ENGINEERS

1720 Walton Road Blue Bell, PA 19422 610•828•3078 Fax 610•828•7842

ORIGINAL

November 14, 2008

EXPRESS MAIL
FedEx No. 8671 3089 1655
Mr. William Rogers
Regional Permit Program Coordinator
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706

Subject: Revisions to Application for Permit-to-Construct P-2008.0008
ALK-Abello Source Materials, Inc. (formerly Biopol Laboratory, Inc.)
Post Falls, Idaho
IES Project No. EHS08308.08

Dear Mr. Rogers:

On behalf of ALK-Abello Source Materials, Inc. (ALK-Abello), IES Engineers (IES) is pleased to submit the enclosed revisions to the application for a Permit-to-Construct for the new allergen purification facility to be constructed in Post Falls, Kootenai County, Idaho. As we have discussed with Mr. Almer Casile, we are providing revised sections including the air permit forms for new or modified sources including the certification page, a marked-up Statement of Basis from the original permit, an updated modeling report, updated emission calculations, and an updated Facility Emission Cap calculation. A number of sources have been eliminated and a few new sources have been added, as noted in the marked-up Statement of Basis. We have enclosed a CD containing all of the revised application files. We are also enclosing a check in the amount of $1,000, payable to "Idaho DEQ" for the application fee; the Department will invoice us at a later date for the processing fee.

The enclosed revision includes the following documents:

Attachment 1:	
Form CS	Cover Sheet
Form GI	General Information
Form EU0	Emission Units – General for new or modified sources
Form BCE	Baghouses Control Equipment (we are reporting the HEPA filter on this form because no specific form exists for HEPA filters)
Form MI-1	Modeling Information – Impact Analysis
Form MI-2	Modeling Information – Point Source Stack Parameters
Form MI-4	Modeling Information – Buildings and Structures
Attachment 2	Marked-up Statement of Basis
Attachment 3	Dispersion Screening Modeling Report
Attachment 4	Updated Emissions Calculations
Attachment 5	Updated Facility Emission Cap calculations

The project description has been modified as follows: The original application indicated multiple buildings; however, the facility has been modified to include one building with multiple sections.

The rooftop air handling units are now electric rather than natural gas hence there will be no emissions from these units and the five house vacuum systems have been consolidated into one house vacuum system. The following table indicates the sources that have been eliminated by a ~~crossout~~ and new ones indicated with (new).

Emissions Units / Processes	Emissions Control Device	Emissions Point
Administration Building		
~~- House vacuum system~~	~~None~~	~~None~~
Birch Building		
- Fluidized bed Dryer	Secondary Cyclone (C-30) and HEPA Filter (C-30A)	Stack 30
~~- House vacuum system~~	~~None~~	~~None~~
- Defatting	Vent Condenser (C-34)	Stack 34
- Pneumatic conveyor release	None	Stack 32
U.S. Mites/Small Scale Manufacturing	None	Stack 7 & Stack 12
Process Development Laboratory	~~Three~~ Two HEPA Filters	Stack 15
Ragweed Building		
- Fluidized Bed Dryer	Secondary Cyclone (C-27) and HEPA Filter (C-27A)	Stack 27
~~- House vacuum system~~	~~None~~	~~None~~
- Defatting	Vent Condenser (C-33)	Stack 33
- Pneumatic conveyor release	None	None
Spanish Mites Building		
- Washing	Vent Condenser (C-23)	Stack 23
~~- House vacuum system~~	~~None~~	~~None~~
- Pneumatic conveyor release	None	None
- Media preparation room	None	None
- Fluid Bed Dryer (new)	Cyclone/HEPA Filter (new)	Stack EF-SMDRY
Timothy Building		Stack 20
- Defatting	Vent Condenser (C-20)	Stack 19
~~- Fluidized bed dryer~~		~~None~~
~~- House vacuum system~~	~~None~~	~~None~~
~~- Pneumatic conveyor release~~	~~None~~	
- Pollen Processing	Dust Collection	EF 9-1
House Vacuum System (new)	Baghouse (new)	Stack EF-VAC (new)
Generator		
Manufacturer: ~~Caterpillar~~ Kohler	Diesel ASTM Grade 2 fuel only	Stack 6
Model: ~~C32 ATAAC~~ 1000REOZDC		
Rated Power: 1,000 kW		
Construction Date: 2007		
Displacement per Cylinder: < 30 Liters/cylinder		
Consumption Rate: 50 gal/hr		
Actual Operation: 200 hr/yr		
Air Handling Units:		
~~One (AHU-1): 0.066 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 8~~
~~One (AHU-2): 0.055 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 9~~
~~One (AHU-3): 0.723 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 10~~
~~One (AHU-4): 0.628 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 11~~
~~One (AHU-6): 0.084 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 13~~
~~Three (AHU-7, 8, & 9): 0.619 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stacks 14, 16, & 17~~
~~One (AHU-10): 1.06 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 18~~
~~One (AHU-11): 0.723 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 21~~
Boilers:	Natural gas fuel only	Stack 5
One (SB-2): 2.5 MMBTU/hr	Natural gas fuel only	Stack 1, 2, 3, & 4
Four (HB-1, 2, 3, & 4): 6.25 MMBTU/hr		

Working closely with Mr. Kevin Schilling, we conducted a revised refined dispersion modeling analysis, using AERMOD (Version 07026), to (i) establish the emission caps for NO_2 and PM_{10}; and (ii) predict the annual average ambient concentration of tetrachloroethylene (perchloroethylene), the only toxic air pollutant for which emissions exceed the Screening Emission Level established in IDAPA 58.01.01.586. The modeling report, including input and output data, is presented in Attachment 3. This analysis followed the modeling guidance provided on the Department's web site and was based on conservative assumptions to ensure that we have identified the worst case scenario from an ambient air quality perspective. Please note that the modeling review in the Statement of Basis in Attachment 2 has not been updated in track changes since that section is a pdf embedded in the Word document.

As you know, this project is critical to ALK-Abello's business interest. We would appreciate the Department's most expeditious review of this revised application. We are available at any time, by meeting or conference call, to answer any questions you may have. Please do not hesitate to contact me or Mr. Sawatzky of ALK-Abello at (509) 456-7794.

Very truly yours,

Robert W. Schlosser, P.E.
Principal Project Manager

Enclosures
cc: M. Sawatzky, ALK-Abello
E. Flagg, IPS

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

1410 North Hilton
Boise, Idaho 83706-1253

RECEIPT

11/17/08
DATE

RECEIVED FROM IES Engineers
ALK-ABE110 Source Metereis

SOURCE
Cash ☐ Check ☒ Money Order ☐ No. 8779

DESCRIPTION	AMOUNT OF PAYMENT
PTC APP Fee	1000 00
Bill to send me Fac #	

RECEIVED BY gp

TOTAL RECEIVED 1000 00

PID	OBS	CA	SUB-OBJ	WP	BE

№ 82911

ATTACHMENT 1

FORMS

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/03/07

Please see instructions on page 2 before filling out the form.

DEQ USE ONLY
Date Received
Project Number
Payment / Fees Included? Yes ☐ No ☐
Check Number

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	ALK-Abello Source Materials, Inc.		
2. Facility Name	Post Falls Facility	3. Facility ID No.	055-00072
4. Brief Project Description - One sentence or less	Construction of Allergen Purification Facility		

PERMIT APPLICATION TYPE

5. ☒ New Facility ☐ New Source at Existing Facility ☐ Unpermitted Existing Source
☐ Modify Existing Source: Permit No.:_____ Date Issued:_____
☐ Required by Enforcement Action: Case No.:_____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms	DEQ Verify
☒	☐	Form GI – Facility Information	☐
☒	☐	Form EU0 – Emissions Units General	☐
☐	☒	Form EU1 - Industrial Engine Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU2 - Nonmetallic Mineral Processing Plants Please Specify number of forms attached: _____	☐
☐	☒	Form EU3 - Spray Paint Booth Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU4 - Cooling Tower Information Please Specify number of forms attached: _____	☐
☐	☒	Form EU5 – Boiler Information Please Specify number of forms attached: _____	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant Please Specify number of forms attached: _____	☐
☐	☒	Form CBP - Concrete Batch Plant Please Specify number of forms attached: _____	☐
☒	☐	Form BCE - Baghouses Control Equipment	☐
☐	☒	Form SCE - Scrubbers Control Equipment	☐
☒	☐	Forms EI-CP1 - EI-CP4 - Emissions Inventory– criteria pollutants (Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan	☐
☒	☐	Forms MI1 – MI4 – Modeling (Excel workbook, all 4 worksheets)	☐
☐	☒	Form FRA – Federal Regulation Applicability	☐

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/26/07

Please see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION	
1. Company Name	ALK-Abello Source Materials, Inc.
2. Facility Name (if different than #1)	Post Falls Facility
3. Facility I.D. No.	055-00072
4. Brief Project Description:	Construction of Allergen Purification Facility
FACILITY INFORMATION	
5. Owned/operated by: (√ if applicable)	☐ Federal government ☐ County government ☐ State government ☐ City government
6. Primary Facility Permit Contact Person/Title	Michael Sawatzky, EH&S Manager
7. Telephone Number and Email Address	509-456-7794 x213, Michael.Sawatzky@alk-abello.com
8. Alternate Facility Contact Person/Title	
9. Telephone Number and Email Address	
10. Address to which permit should be sent	327 East Pacific Ave
11. City/State/Zip	Spokane, WA 99202
12. Equipment Location Address (if different than #10)	Lochsa Street and Clearwater Loop
13. City/State/Zip	Post Falls, ID 83854
14. Is the Equipment Portable?	☐ Yes ☒ No
15. SIC Code(s) and NAISC Code	Primary SIC: 2836 Secondary SIC (if any): NAICS: 325414
16. Brief Business Description and Principal Product	Purification of allergens for subsequent production of vaccines at other locations.
17. Identify any adjacent or contiguous facility that this company owns and/or operates	None
PERMIT APPLICATION TYPE	
18. Specify Reason for Application	☐ New Facility ☐ New Source at Existing Facility ☐ Unpermitted Existing Source ☐ Modify Existing Source: Permit No.:____ Date Issued: ____ ☒ Permit Revision ☐ Required by Enforcement Action: Case No.:____

CERTIFICATION

IN ACCORDANCE WITH IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO), I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.

19. Responsible Official's Name/Title	Michael Sawatzky, EH&S Manager	
20. RESPONSIBLE OFFICIAL SIGNATURE		Date: 11/12/08
21. ☒ Check here to indicate you would like to review a draft permit prior to final issuance.		

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
ALK-Abello Source Materials, Inc.	Post Falls Facility	055-00072
Brief Project Description:	Construction of Allergen Purification Facility	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	USM PURIFICATION LAB HOOD EXHAUSTS - SEE EU01 LIST
2. EU ID Number:	EF 2-1
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	LABCONCO'S PROTECTOR XSTREAM SERIES
5. Model:	UNKNOWN
6. Maximum Capacity:	2200 CFM
7. Date of Construction:	SUMMER 2008
8. Date of Modification (if any)	N/A
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:	N/A		
11. Date of Installation:	N/A	12. Date of Modification (if any):	N/A
13. Manufacturer and Model Number:	N/A		
14. ID(s) of Emission Unit Controlled:	N/A		
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	N/A	N/A	N/A	N/A	N/A	N/A

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	8 HOURS/DAY, 5 DAYS/WEEK, 52 WEEKS/YEAR
19. Maximum Operation	24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	N/A

EU01
List of Equipment for Source EF 2-1

Emission Sources		Installation Date
USM-2007, Purification Lab	Fume Hood 1	Summer 2008
USM-2007, Purification Lab	Fume Hood 2	Summer 2008

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

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IDENTIFICATION		
Company Name: ALK-Abello Source Materials, Inc.	Facility Name: Post Falls Facility	Facility ID No: 055-00072
Brief Project Description:	Construction of Allergen Purification Facility	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION	
1. Emissions Unit (EU) Name:	POLLEN LAB HOOD EXHAUSTS - SEE EU02 EQUIPMENT LIST
2. EU ID Number:	EF 3-1
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	LABCONCO'S PROTECTOR XSTREAM SERIES
5. Model:	UNKNOWN
6. Maximum Capacity:	11,865 CFM
7. Date of Construction:	SUMMER 2008
8. Date of Modification (if any)	N/A
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT			
10. Control Equipment Name and ID:	N/A		
11. Date of Installation:	N/A	12. Date of Modification (if any):	N/A
13. Manufacturer and Model Number:	N/A		
14. ID(s) of Emission Unit Controlled:	N/A		
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	N/A	N/A	N/A	N/A	N/A	N/A

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)	
18. Actual Operation	8 HOURS/DAY, 5 DAYS/WEEK, 52 WEEKS/YEAR
19. Maximum Operation	24 hours/day, 7 days/week, 52 weeks/year

REQUESTED LIMITS	
20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	N/A

EU02
List of Equipment for Source EF 3-1

Emission Sources		Installation Date
PLA-2003, FEI/EPI Lab Common	Fume Hood 1	Summer 2008
PLA-2003, FEI/EPI Lab Common	Fume Hood 2	Summer 2008
PLA-2003, FEI/EPI Lab Common	Room Exhaust	Summer 2008
PLA-2013, EPI Lab	Fume Hood	Summer 2008
PLA-2004, PRS Lab	Fume Hood 1	Summer 2008
PLA-2004, PRS Lab	Fume Hood 2	Summer 2008
PLA-2004, PRS Lab	Fume Hood 3	Summer 2008
PLA-2004, PRS Lab	Fume Hood 4	Summer 2008
PLA-2005, Filt. QN/Sieve	Fume Hood 1	Summer 2008
PLA-2005, Filt. QN/Sieve	Fume Hood 2	Summer 2008

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
ALK-Abello Source Materials, Inc.	Post Falls Facility	055-00072
Brief Project Description:	Construction of Allergen Purification Facility	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	CLASS II B2 BIOLOGICAL SAFETY CABINET
2. EU ID Number:	EF 3-4
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	LABCONCO, PURIFIER, LOGIC CLASS II B2
5. Model:	MODEL 3461000
6. Maximum Capacity:	UNKNOWN
7. Date of Construction:	SUMMER 2008
8. Date of Modification (if any)	N/A
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:	N/A		
11. Date of Installation:	N/A	12. Date of Modification (if any):	N/A
13. Manufacturer and Model Number:	N/A		
14. ID(s) of Emission Unit Controlled:	N/A		
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	N/A	N/A	N/A	N/A	N/A	N/A

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	8 HOURS/DAY, 5 DAYS/WEEK, 52 WEEKS/YEAR
19. Maximum Operation	24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	N/A

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: ALK-Abello Source Materials, Inc.	Facility Name: Post Falls Facility	Facility ID No: 055-00072
Brief Project Description:	Construction of Allergen Purification Facility	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION	
1. Emissions Unit (EU) Name:	SPANISH MITE FLUID BED DRYER
2. EU ID Number:	EF SMDRY
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
4. Manufacturer:	TBD
5. Model:	TBD
6. Maximum Capacity:	300 KG/DAY
7. Date of Construction:	FUTURE
8. Date of Modification (if any)	N/A
9. Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT			
10. Control Equipment Name and ID:	CYCLONE EF SMDRY		
11. Date of Installation:	Future	12. Date of Modification (if any):	N/A
13. Manufacturer and Model Number:	TBD		
14. ID(s) of Emission Unit Controlled:	EF SMDRY		
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	N/A	N/A	N/A	N/A	N/A	N/A

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)	
18. Actual Operation	8 HOURS/DAY, 5 DAYS/WEEK, 52 WEEKS/YEAR
19. Maximum Operation	24 HOURS/DAY, 7 DAYS/WEEK, 52 WEEKS/YEAR

REQUESTED LIMITS	
20. Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	N/A

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PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/02/07

Please see instructions on page 3 before filling out the form.

IDENTIFICATION		
Company Name: ALK-Abello Source Materials, Inc.	**Facility Name:** Post Falls Facility	**Facility ID No.:** 055-00072
Brief Project Description:		

IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	**EU ID No.**	**CE ID No.**	**Stack ID No.**	**Baghouse Manufacturer**	**Baghouse Model No.**	**Type**	**Type**	**Size (Dia x Ht)**	**No. of Bags**	**Air to Cloth**
Timothy Building dust collector	EF 9-1	C 9-1	S 9-1	Donaldson Torit	DFO-3-12	HEPA Filter	Cartridge	11.4" x 14.4" x 26" (oval)	12	Airflow = 5625 CFM Filter Media Area = 2280 sq ft Ratio = 2.47

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IDENTIFICATION		
Company Name: Alk-Abello Source Materials, Inc.	**Facility Name:** Post Falls Facility	**Facility ID No.:** 055-00072
Brief Project Description:		

IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	EU ID No.	CE ID No.	Stack ID No.	Baghouse Manufacturer	Baghouse Model No.	Type	Type	Size (Dia x Ht)	No. of Bags	Air to Cloth
Birch Building fluid bed dryer (Future)	SRC 30	C 30	S 30	T.B.D.	T.B.D.	Cyclone	N.A.	N.A.	N.A.	N.A.
Birch Building fluid bed dryer (Future)	SRC 30	C 30	S 30	T.B.D.	T.B.D.	HEPA Filter	T.B.D.	T.B.D.	T.B.D.	T.B.D.

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IDENTIFICATION		
Company Name: Alk-Abello Source Materials, Inc.	**Facility Name:** Post Falls Facility	**Facility ID No.:** 055-00072
Brief Project Description:		

IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	EU ID No.	CE ID No.	Stack ID No.	Baghouse Manufacturer	Baghouse Model No.	Type	Type	Size (Dia x Ht)	No. of Bags	Air to Cloth
House Vacuum	EF VAC	C VAC	S VAC	T.B.D.	T.B.D.	Cyclone	N.A.	N.A.	N.A.	N.A.
House Vacuum	EF VAC	C VAC	S VAC	T.B.D.	T.B.D.	HEPA Filter	T.B.D.	T.B.D.	T.B.D.	T.B.D.

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Revision 3
04/02/07

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IDENTIFICATION		
Company Name: Alk-Abello Source Materials, Inc.	**Facility Name:** Post Falls Facility	**Facility ID No.:** 055-00072
Brief Project Description:		

IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	EU ID No.	CE ID No.	Stack ID No.	Baghouse Manufacturer	Baghouse Model No.	Type	Type	Size (Dia x Ht)	No. of Bags	Air to Cloth
Ragweed Building fluid bed dryer (Future)	SRC 27	C 27	S 27	T.B.D.	T.B.D.	Cyclone	N.A.	N.A.	N.A.	N.A.
Ragweed Building fluid bed dryer (Future)	SRC 27	C 27	S 27	T.B.D.	T.B.D.	HEPA Filter	T.B.D.	T.B.D.	T.B.D.	T.B.D.

DEQ AIR QUALITY PROGRAM
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PERMIT TO CONSTRUCT APPLICATION

Revision 3
04/02/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: ALK-Abello Source Materials, Inc.	**Facility Name:** Post Falls Facility	**Facility ID No.:** 055-00072
Brief Project Description:		

IDENTIFICATION				BAGHOUSE			BAGS			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Emission Unit	EU ID No.	CE ID No.	Stack ID No.	Baghouse Manufacturer	Baghouse Model No.	Type	Type	Size (Dia x Ht)	No. of Bags	Air to Cloth
Spanish Mite Fluid Bed Dryer	EF SM DRY	C SM DRY	S SM DRY	T.B.D.	T.B.D.	Cyclone	N.A.	N.A.	N.A.	N.A.
Spanish Mite Fluid Bed Dryer	EF SM DRY	C SM DRY (a)	S SM DRY	T.B.D.	T.B.D.	HEPA Filter	T.B.D.	T.B.D.	T.B.D.	T.B.D.

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4/5/2007

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Company Name:	ALK-Abello Source Materials, Inc.
Facility Name:	Post Falls Facility
Facility ID No.:	055-00072
Brief Project Description:	Construction of Allergen Purification Facility

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	**Averaging Period**	**Significant Impact Analysis Results (µg/m3)**	**Significant Contribution Level (µg/m3)**	**Full Impact Analysis Results (µg/m3)**	**Background Concentration (µg/m3)**	**Total Ambient Impact (µg/m3)**	**NAAQS (µg/m3)**	**Percent of NAAQS**
PM_{10}	24-hour	NA	5	78.40	67.00	145.80	150	97%
	Annual	NA	1	23.20	23.70	46.90	50	94%
SO_2	3-hr	NA	25	NA	NA	NA	1300	NA
	24-hr	NA	5	NA	NA	NA	365	NA
	Annual	NA	1	NA	NA	NA	80	NA
NO_2	Annual	NA	1	33.20	32.00	65.20	100	65%
CO	1-hr	NA	2000	NA	NA	NA	10000	NA
	8-hr	NA	500	NA	NA	NA	40000	NA

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 3/27/2007

Please see instructions on page 2 before filling out the form.

Company Name:	ALK-Abello Source Materials, Inc
Facility Name:	Post Falls Facility
Facility ID No.:	055-00072
Brief Project Description:	Construction of Allergen Purification Facility

POINT SOURCE STACK PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Stack Height (m)	Modeled Diameter (m)	Stack Exit Temperature (K)	Stack Exit Flowrate (acfm)	Stack Exit Velocity (m/s)	Stack orientation (e.g., horizontal, rain cap)
Point Source(s)										
USM Purification Lab Hood Exhausts	EF 2-1	499,722.80	5,283,126.80	640.60	12.20	0.30	294.30	1,963.00	12.50	Vertical, no rain cap
Pollen Lab Hood Exhausts	EF 3-1	499,698.50	5,283,121.20	614.40	12.20	0.60	294.30	7,850.00	12.50	Vertical, no rain cap
Process Development Lab Hood Exhausts	EF 4-1	499,721.10	5,283,129.60	640.70	12.20	0.70	294.30	11,304.00	12.50	Vertical, no rain cap
Class 2 B2 Biological Safety Cabinet	EF 3-4	499,691.80	5,283,107.60	641.60	12.20	0.22	294.30	1,104.00	12.50	Vertical, no rain cap
House Vacuum	EF VAC	499,691.70	5,283,097.90	641.60	3.00	0.15	294.30	491.00	12.50	Vertical, no rain cap
2 Future, 2 Present Natural gas fired boilers (125 bhp)	SRC 1	499,696.90	5,283,100.60	641.50	10.80	0.41	480.40	3,471.00	12.50	Vertical, no rain cap
Natural gas fired boiler (50 bhp)	SRC 5	499,707.10	5,283,101.70	641.10	10.80	0.15	474.30	491.00	12.50	Vertical, no rain cap
Emergency Generator (1,000 KW)	SRC 6	499,729.60	5,283,107.60	640.40	3.70	0.30	797.00	7,772.00	49.50	Vertical, no rain cap
Timothy Building Dust Collector (Future)	EF 9-1	499,699.90	5,283,092.10	641.40	9.30	0.51	294.30	5,672.00	12.50	Vertical, no rain cap
Spanish Mite Building media prep vent (Future)	SRC 24	499,736.80	5,283,101.70	640.10	9.30	0.24	294.30	1,256.00	12.50	Vertical, no rain cap
Spanish Mite Fluid Bed Dryer	EF SMDRY	499,738.90	5,283,097.70	640.10	9.30	0.12	310.90	298.00	12.50	Vertical, no rain cap
Spanish Mite Building pneumatic vent (Future)	SRC 26	499,740.70	5,283,094.10	640.00	9.30	0.37	294.30	2,826.00	12.50	Vertical, no rain cap
Ragweed fluid bed dryer (Future)	SRC 27	499,706.10	5,283,079.80	641.10	9.30	0.49	310.90	5,024.00	12.50	Vertical, no rain cap
Ragweed pneumatic vent (Future)	SRC 29	499,719.20	5,283,087.20	640.40	9.30	0.18	294.30	707.00	12.50	Vertical, no rain cap
Birch fluid bed dryer (Future)	SRC 30	499,711.20	5,283,078.40	641.00	9.30	0.49	310.90	5,024.00	12.50	Vertical, no rain cap
Birch pneumatic vent (Future)	SRC 32	499,720.80	5,283,084.00	640.70	9.30	0.18	294.30	707.00	12.50	Vertical, no rain cap
(insert more rows as needed)										

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	ALK-Abello Source Materials, Inc.
Facility Name:	Post Falls Facility
Facility ID No.:	055-00072
Brief Project Description:	Construction of Allergen Purification Facility

BUILDING AND STRUCTURE INFORMATION

1.	2.	3.	4.	5.	6.	7.
Building ID Number	**Length (ft)**	**Width (ft)**	**Base Elevation (m)**	**Building Height (m)**	**Number of Tiers**	**Description/Comments**
Main Building	223.00	115.00	641.65	8.84	1	
Utilities Section	135.00	50.00	641.46	7.62	1	
Timothy Pollen Section	135.00	28.00	641.40	7.62	1	
Shell Space	223.00	92.00	641.15	7.62	1	
Future Space	223.00	60.00	640.90	7.62	1	

DEQ AIR QUALITY PROGRAM
1410 N. Hilton
Boise, ID 83706
For assistance: (208) 373-0502

PERMIT TO CONSTRUCT APPLICATION

Company Name:	ALK-Abello Source Materials, Inc.
Facility Name:	Post Falls Facility
Facility ID No.:	N.A. -- new facility
Brief Project Description:	Construction of Allergen Purification Facility

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

		3.											
1.	2.	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
HB-1 Boiler (SRC-1)	SRC-1	0.05	0.20	0.00	0.02	0.30	1.30	0.50	2.20	0.03	0.14	N.A.	N.A.
HB-2 Boiler (SCR-1)	SCR-1	0.05	0.20	0.00	0.02	0.30	1.30	0.50	2.20	0.03	0.14		
HB-3 Boiler (SRC-1)	SRC-1	0.05	0.20	0.00	0.02	0.30	1.30	0.50	2.20	0.03	0.14		
HB-4 Boiler (SRC-1)	SRC-1	0.05	0.20	0.00	0.02	0.30	1.30	0.50	2.20	0.03	0.14		
SRC-5	SRC-5	0.02	0.08	0.00	0.01	0.12	0.50	0.20	0.90	0.01	0.06		
SRC-6	SRC-6	0.44	0.11	0.49	0.12	12.36	3.09	7.71	1.93	1.74	0.44		
SRC-30	SRC-30	0.215	0.942										
SRC-32	SRC-32	0.04	0.175										
SRC-27	SRC-27	0.215	0.942										
SRC-29	SRC-29	0.04	0.175										
SRC-24	SRC-24	0.11	0.48										
SRC-26	SRC-26	0.26	1.139										
~~B-34~~	~~S-34~~	~~0.04~~	~~0.19~~										
~~R-28~~	~~S-28~~	~~0.04~~	~~0.19~~										
~~T-22~~	~~S-22~~	~~0.04~~	~~0.19~~										
~~SM-25~~	~~S-25~~	~~0.04~~	~~0.19~~										
EF2-1, EF3-1, EF3-4	EF2-1, EF3-1, EF3-4	0.70	3.13							1.11	0.40		
EF4-1	EF4-1	0.27	1.18							0.08	0.10		
SM-23	SM-23									4.97	6.45		
B-34 (No VOCs, TAPs only)	S-34												
R-33 (No VOCs, TAPs only)	S-33												
T-20 (No VOCs, TAPs only)	S-20												
EF-VAC	EF-VAC	0.04	0.19										
EF 9-1	EF 9-1	0.24	1.06										
EF-SMDRY	EF-SMDRY	0.03	0.11										
Total[a]		**2.82**	**10.54**	**0.50**	**0.21**	**13.68**	**8.79**	**9.91**	**11.63**	**8.03**	**8.01**		

[a] **See Attachment 5 for proposed emission limits**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton
Boise, ID 83706
For assistance: (208) 373-0502

PERMIT TO CONSTRUCT APPLICATION

Company Name:	**ALK-Abello Source Materials, Inc.**
Facility Name:	**Post Falls Facility**
Facility ID No.:	**N.A. -- new facility**
Brief Project Description:	**Construction of Allergen Purification Facility**

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - FUGITIVE SOURCES

		3.											
1.	2.	PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Fugitive Source Name	Fugitive ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Fugitive Source(s)													
N.A. -- no fugitive sources													
Total													

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton Boise, ID 83706 **For assistance: (208) 373-0502**	**PERMIT TO CONSTRUCT APPLICATION**

Company Name:	**ALK-Abello Source Materials, Inc.**
Facility Name:	**Post Falls Facility**
Facility ID No.:	**N.A. -- new facility**
Brief Project Description:	**Construction of Allergen Purification Facility**

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - POINT SOURCES

		3.											
1.	2.	PM_{10}		SO_2		NO_x		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
N.A. -- new facility													
Total													

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton Boise, ID 83706 **For assistance: (208) 373-0502**	**PERMIT TO CONSTRUCT APPLICATION**
Company Name:	**ALK-Abello Source Materials, Inc.**	
Facility Name:	**Post Falls facility**	
Facility ID No.:	**N.A. -- new facility**	
Brief Project Description:	**Construction of Allergen Purification facility**	

SUMMARY OF EMISSIONS INCREASE (PROPOSED PTE - PREVIOUSLY MODELED PTE) - FUGITIVE SOURCES

		3. Air Pollutant Maximum Change in Emissions Rate (lbs/hr or t/yr)											
1.	2.	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Fugitive Source Name	**Fugitive ID**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**	**lb/hr**	**T/yr**
Fugitive Source(s)													
N.A. -- new facility													
Total													

ATTACHMENT 2

STATEMENT OF BASIS

Air Quality Permitting
Statement of Basis

~~July 13, 2007~~~~September 2, 2008~~ November 14, 2008

Permit to Construct No. P-2007.0063

~~Biopol Laboratory~~ALK-Abello Source Materials, Inc., Post Falls

Facility ID No. 055-00072

Prepared by:

Jonathan Pettit, Permit Writer
Air Quality Division

Final

Table of Contents

Acronyms, Units, and Chemical Nomenclatures

AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
DEQ	Department of Environmental Quality
FEC	facility emissions cap
gal/hr	gallon per hour
g/kW-hr	grams per kilowatt hour
gr	grain (1 lb = 7,000 grains)
HAPs	hazardous air pollutants
ICE	internal combustion engine
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
kW	kilowatt
lb/hr	pound per hour
MMBtu	million British thermal units
MMBTU/hr	million British thermal units per hour
NMHC	nonmethane hydrocarbons
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PTC	permit to construct
SIC	Standard Industrial Classification
SM	synthetic minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAPs	toxic air pollutants
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

~~Biopol Laboratory, Inc.~~ALK-Abello Source Materials, Inc. (ALK-Abello) collects and processes a number of allergens, including birch pollen, ragweed pollen, timothy pollen, and mites for subsequent production of allergen vaccines at other facilities.

3. FACILITY / AREA CLASSIFICATION

~~Biopol Laboratory, Inc.~~ALK-Abello is classified as a synthetic minor facility because; ~~Biopol Laboratory, Inc.~~ALK-Abello potential to emit is less than major source thresholds without requiring limits on its potential to emit. The AIRS classification is B.

The facility is located within AQCR 62 and UTM zone 11. The facility is located in Kootenai County which is designated as unclassifiable/attainment for CO and ozone and designated as unclassifiable and/or attainment for SO_2, PM_{10}, and NO_x.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at ~~Biopol Laboratory, Inc.~~ALK-Abello This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

This PTC with a Facility Emissions Cap (FEC) allows for construction of ~~Biopol Laboratory, Inc.~~ALK-Abello allergen purification facility in Post Falls. ~~Biopol~~ALK-Abello proposes to install laboratory purification and production equipment.

4.1 Application Chronology

April 23, 2007	DEQ received PTC FEC application
May 11, 2007	Application determined complete
May 17, 2007	Draft permit sent for peer and regional review
June 25, 2007	Draft permit sent to facility for review
July 3, 2007	Draft permit sent to facility for review with requested revisions considered and incorporated or considered but not incorporated
July 13, 2007	PTC Issued Final
November~~October~~, 2008	Submitted revised application

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action:

5.1 Equipment Listing

Table 5.1 FACILITY EMISSIONS DESCRIPTION

Emissions Units / Processes	Emissions Control Device	Emissions Point
Administration Building		
- ~~House vacuum system~~	~~None~~	~~None~~
Birch Building		
- Fluidized bed Dryer	Secondary Cyclone (C-30) and HEPA Filter (C-30A)	Stack 30
- ~~House vacuum system~~	~~None~~	~~None~~
- Defatting	Vent Condenser (C-34)	Stack 34
- Pneumatic conveyor release	None	Stack 32
U.S. Mites/Small Scale Manufacturing	None	Stack 7 & Stack 12
Process Development Laboratory	~~Three~~ Two HEPA Filters	Stack 15
Ragweed Building		
- Fluidized Bed Dryer	Secondary Cyclone (C-27) and HEPA Filter (C-27A)	Stack 27
- ~~House vacuum system~~	~~None~~	~~None~~
- Defatting	Vent Condenser (C-33)	Stack 33
- Pneumatic conveyor release	None	None
Spanish Mites Building		
- Washing	Vent Condenser (C-23)	Stack 23
- ~~House vacuum system~~	~~None~~	~~None~~
- Pneumatic conveyor release	None	None
- Media preparation room	None	None
- Fluid Bed Dryer	Cyclone/HEPA Filter	Stack EF SMDRY
Timothy Building		
- Defatting	Vent Condenser (C-20)	Stack 20
-	Baghouse (future)	EF9-1
- ~~Fluidized bed dryer~~	~~Secondary Cyclone (C-19) and HEPA Filter (C-19A)~~	~~Stack 19~~
- ~~House vacuum system~~	~~None~~	~~None~~
- ~~Pneumatic conveyor release~~	~~None~~	~~None~~
House Vacuum System	Baghouse	Stack EF-VAC
Generator		
Manufacturer: ~~Caterpillar~~ Kohler	Diesel ASTM Grade 2 fuel only	Stack 6
Model: ~~C32 ATAAC~~ 1000REOZDC		
Rated Power: 1,000 kW		
Construction Date: 2007		
Displacement per Cylinder: < 30 Liters/cylinder		
Consumption Rate: 50 gal/hr		
Actual Operation: 200 hr/yr		
~~Air Handling Units:~~		
~~One (AHU-1): 0.066 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 8~~
~~One (AHU-2): 0.055 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 9~~
~~One (AHU-3): 0.723 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 10~~
~~One (AHU-4): 0.628 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 11~~
~~One (AHU-6): 0.084 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 13~~
~~Three (AHU-7, 8, & 9): 0.619 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stacks 14, 16, & 17~~
~~One (AHU-10): 1.06 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 18~~
~~One (AHU-11): 0.723 MMBTU/hr~~	~~Natural gas fuel only~~	~~Stack 21~~
Boilers:		
One (SB-~~2~~SRC5): 2.5 MMBTU/hr	Natural gas fuel only	Stack 5
Four (~~HB-1, 2, 3, & 4~~ SRC1): 6.25 MMBTU/hr	Natural gas fuel only	Stack 1, 2, 3, & 4

5.2 Emissions Inventory

Table 5.2 FEC CRITERIA EMISSIONS LIMITS

Source Description	PM_{10}	SO_x	NO_x	VOC	CO	Individual HAPs	Aggregate HAPs
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Total Facility Emissions Cap	~~17~~ ~~12~~ 11	0.5	~~10~~ 9	~~10~~ ~~14~~ 10	~~17~~ 14	~~0.4~~ ~~10~~ 0.4	~~0.5~~ ~~25~~ 0.5

5.3 Modeling

Air dispersion modeling results show compliance with all applicable standards. Modeling demonstrates that the facility will have the capacity to operate with PM_{10} emissions ~~at 85% of~~ below both the 24-hour NAAQS standard and ~~73% of~~ the annual NAAQS standard. Details of the ambient impact analysis, including predicted ambient concentrations may be seen in Appendix C.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

The facility's proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a PTC is required.

IDAPA 58.01.01.203.....Permit Requirements for New and Modified Stationary Sources

The applicant has shown to the satisfaction of DEQ that the facility will comply with all applicable emissions standards, ambient air quality standards, and toxic increments.

IDAPA 58.01.01.210.....Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application.

IDAPA 58.01.01.223.....Exemption Criteria and Reporting Requirements for Toxic Air Pollutant Emissions.

The facilities emission of acetone, isopropyl alcohol, ethanol, and methanol were modeled to be less than the acceptable ambient concentration levels (See Appendix C for detailed Modeling Analysis).

40 CFR 60, Subpart IIII .....Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR 60.4200 .....Am I subject to this subpart?

~~Biopol Laboratory, Inc.~~ALK-Abello is subject to 40 CFR 60, Subpart IIII because they are an owner operator of a compression ignition (CI) internal combustion engine (ICE) with a displacement of less than 30 liters per cylinder and the model year is 2007 or later and is not a fire pump engine as referenced in 40 CFR 60.4200(a)(1).

40 CFR 60.4201 .....What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

These requirements do not apply to the facility because they will be operating emergency engines not manufacturing them.

40 CFR 60.4202 ..... What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

40 CFR 60.4202(a)(2) applies to this facility because they will be operating a compression ignition internal combustion engine for emergency purposes that is greater than 37kW. 40 CFR 60.4202(a)(2) is applicable by reference of 40 CFR 60.4205(b).

The permittee shall not discharge exhaust opacity from the compression-ignition (CI) nonroad engine to exceed 20 percent during acceleration mode, 15 percent during lugging mode, and 50 percent during the peaks in either the acceleration or lugging modes in accordance with 40 CFR 89.113 by reference of 40 CFR 60.4202(a)(2).

The permittee shall not exceed emission standards given in Table 5.3 in accordance with 40 CFR 89.112, Table 2, and as specified by manufacture specifications, by reference of 40 CFR 60.4202(a)(2). g/kW-hr was converted to lb/Hp-hr using the following conversion in Table 5.4.

Table 5.3 EMISSION STANDARDS

Rated Power (kW)	Tier	Model Year	NMHC+NO_x (g/kW-hr)	NMHC+NO_x (lb/Hp-hr)	CO (g/kW-hr)	CO (lb/Hp-hr)	PM (g/kW-hr)	PM (lb/Hp-hr)
kW>560	Tier 2	2006	6.4	0.0105	3.5	0.0058	0.20	0.0003

Table 5.4 Conversion Process[1]

$$\frac{g}{kW-hr} \times \frac{lb}{453.6g} \times \frac{kW-hr}{1.341Hp-hr} = \frac{lb}{Hp-hr}$$

1) Conversion factors from AP-42, Appendix A "Miscellaneous Data and Conversion Factors"

The emission standards for 40 CFR 60, Subpart IIII are generally modeled after EPA's standards for nonroad and marine diesel engines (40 CFR 89.112 and 40 CFR 89.113) according to Federal Register Vol. 71, No. 132, 7/11/2006, Part II pg. 39156. The interpretation of this rule is that the emission standards of nonroad engines apply to the emergency generators as an NSPS affected sources not as a nonroad engine according to the definitions 40 CFR 1068.30 by reference of the Federal Register Vol. 71, No. 132, 7/11/2006, Part II pg. 39185, "An internal combustion engine is not a nonroad engine if the engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the Act (42 U.S.C. 7411)."

40 CFR 60.4203 ..... How long must I meet the emission standards if I am a stationary CI internal combustion engine manufacturer?

These requirements do not apply to the facility because they are not a stationary CI internal combustion engine manufacturer.

40 CFR 60.4204 ..... What emission standards must I meet for non-emergency engines if I am an owner operator of a stationary CI internal combustion engine?

These requirements do not apply to this facility because they are operating engines for emergency use.

40 CFR 60.4205 ..... What emission standards must I meet for emergency engines if I am an owner operator of a stationary CI internal combustion engine?

40 CFR 60.4205(b) applies to this facility because they will be operating a compression ignition internal combustion engines for emergency purposes that has a displacement of less than 30 liters per cylinder that is not a fire pump engine and are manufactured after April 1, 2006.

40 CFR 60.4206 ..... How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

40 CFR 60.4206 applies to this facility because they will operate a compression ignition internal combustion engine for emergency purposes that is greater than 37kW that meets the requirements of 40 CFR 60.4205(b). The permittee shall operate and maintain their CI ICE in accordance with the manufacturers written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

40 CFR 60.4207 ..... What fuel requirements must 1 meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

40 CFR 60.4207(a) and (b) apply to this facility because they will operate a compression ignition internal combustion engine for emergency purposes that is greater than 37kW. Beginning October 1, 2007, the permittee shall use diesel fuel with a maximum sulfur content not to exceed 500 ppm and Cetane index of a minimum of 40 or a maximum aromatic content of 35 volume percent in accordance with 40 CFR 80.510(a) by reference of 40 CFR 60.4207(a). Beginning October 1, 2010, the permittee shall use diesel fuel with a maximum sulfur content of 15 ppm maximum and a minimum of Cetane index of 40 or a maximum aromatic content of 35 volume percent in accordance with 40 CFR 80.510(b) by reference of 40 CFR 60.4207(b).

40 CFR 60.4208 ..... What is the deadline for importing or installing stationary CI ICE produced in the previous year?

40 CFR 60.4208 loosely applies to the facility because they will be installing CI ICE before December 31, 2008. However, the facility is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (f) of section 40 CFR 60.4208 after the dates specified in paragraphs (a) through (f) of 40 CFR 60.4208. At the time of this permit action, the facility was assumed to install a Caterpillar (or equivalent) C32 ATAAC (or equivalent) engine.

40 CFR 60.4209 ..... What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

40 CFR 60.4209(a) applies to this facility as an owner and operator of a CI ICE. The permittee shall in stall a non-resettable hour meter prior to startup of the engine.

40 CFR 60.4210 ..... What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

These requirements do not apply to the facility because they are not a stationary CI internal combustion engine manufacturer.

40 CFR 60.4211 ..... What are my compliance requirements if I am and owner operator of a stationary CI internal combustion engine?

40 CFR 60.4211(a), 40 CFR 60.4211(c), and 40 CFR 60.4211(e) apply to this facility because they will operate a CI ICE.

The permittee shall operate and maintain the stationary CI ICE and control device in accordance to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition the owner and operator may only change those setting that are permitted by the manufacturer, permittee shall with all applicable provisions of 40 CFR 89, 94 and/or 1068 as they apply by reference of 40 CFR 60.4211(a).

The owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in 40 CFR 60.4205(b), you must comply by

purchasing an engine certified to the emission standards in 40 CFR 60.4205(b), for the same model year and maximum engine power; the engine must be installed and configured according to the manufacturer's specifications in accordance with 40 CFR 60.4211(c).

In accordance with 40 CFR 60.4211(e), emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Anyone may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. For owners and operators of emergency engines meeting standards under 40 CFR 60.4205 but not 40 CFR 60.4204, any operation other than emergency operation, and maintenance and testing as permitted in this section, is prohibited.

40 CFR 60.4212 ..... What test methods and other procedures must I use if I'm an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

These requirements do not apply to this facility because they will not be installing pre-2007 CI ICEs and no applicable provisions of this subpart require or allow option of performance testing.

40 CFR 60.4213 ..... What test methods and other procedures must I use if I am an owner or operator of a stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder?

40 CFR 60.4213 does not apply to the facility because they will be installing a CI ICE with a displacement of less than 30 liters per cylinder.

40 CFR 60.4214 ..... What are my notifications, reporting, and recordkeeping requirements if I am and owner or operator of a stationary CI internal combustion engine?

40 CFR 60.4214(b) applies to this facility because the will operate a compression ignition internal combustion engine for emergency purposes. The owner or operator is not required to submit an initial notification. The owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

40 CFR 60.4215 ..... What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

These requirements do not apply to this facility because the facility is not located in the specified location(s).

40 CFR 60.4216 ..... What requirements must I meet for engines used in Alaska?

These requirements do not apply to this facility because the facility is not located in the specified location(s).

40 CFR 60.4217 ..... What requirements must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

These requirements do not apply to this facility because they are combusting ASTM Grade 2 fuel oil.

40 CFR 60.4218 ..... What part of the general provision apply to me?

All general provisions apply to this facility except those specified in 40 CFR 60, Subpart IIII.

40 CFR 60.4219 .....What definitions apply to this subpart?

All parts of this section apply to the requirements of 40 CFR 60, Subpart IIII.

5.5 *Permit Conditions Review*

This section describes only those permit conditions that have been revised, modified or deleted as a result of this permit action. All other permit conditions remain unchanged.

FACILITY EMISSIONS CAP

Permit Condition 2.3
Permit Condition 2.3 establishes a facility wide emissions cap. Compliance shall be demonstrated through Permit Conditions 2.7, 2.9, 2.10, 2.11, 2.13, 2.15, and General Provision 7.

Permit Condition 2.4
Permit Condition 2.4 establishes an opacity limit for all stacks, vents and functionally equivalent opening at the facility. Compliance shall be demonstrated through Permit Conditions 2.7, 2.9, 2.10, 2.11, 2.13, 2.15, and General Provision 7.

Permit Condition 2.5, 2.7, 2.8, and 2.12
Permit Condition 2.5, 2.7, 2.8, and 2.12 have been added to set forth the requirements of 40 CFR 60, Subpart IIII - New Source Performance Standards for Compression Ignition Internal Combustion.

Permit Condition 2.6
Permit Condition 2.6 establishes a fuel sulfur content limit for diesel fuel in accordance with IDAPA 58.01.01.728. Compliance shall be demonstrated through Permit Conditions 2.9 and General Provision 7.

Permit Conditions 2.10, 2.11, 2.13, and 2.15
Permit Conditions 2.10, 2.11, 2.13, and 2.15 have been added to set forth the requirements for the Facility Wide Emissions Cap in accordance with IDAPA 58.01.01.176-181.

6. PERMIT FEES

~~Biopol Laboratory, Inc.~~ALK-Abello the PTC application fee of $1,000.00 on April 23, 2007. In accordance with IDAPA 58.01.01.225 and 226 a PTC processing fee of $5,000.00 is required, because the increase of emissions is 10 to less than 100 tons per year (see Table 6.1). Processing fee received by DEQ on July 6, 2007.

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	~~10~~2	0	~~10~~2
SO_2	0.5	0	0.5
CO	~~17~~14	0	~~17~~14
PM_{10}	~~17~~16~~12~~ 11	0	~~17~~16~~12~~ 11
VOC	~~10~~ 14 10	0	~~10~~ 14 10
HAPS	~~25~~ 0.5	0	~~25~~ 0.5
Total:	~~0.0~~ ~~74.5~~ 45	0	~~79.5~~ ~~74.5~~ 45
Fee Due	**$ 5,000.00**		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

A draft of the permit was submitted to Coeur d'Alene Regional Office on May 17, 2007. Coeur d'Alene Regional Office was concerned with the applicability of 40 CFR 60.4205(b) regarding applicability opacity as specified in 40 CFR 89.113 by reference of 40 CFR 60.4205(a)(2). The comments we not incorporated because the emission standards for 40 CFR 60, Subpart IIII are generally modeled after EPA's standards for nonroad and marine diesel engines in accordance with Federal Register (Vol. 71, No. 132, 7/11/2006, Part II, pg. 39156). The interpretation of this rule is that the emission standards of nonroad engines apply to the emergency generators as an NSPS affected sources not as a nonroad engine in accordance with 40 CFR 1068.30, "An internal combustion engine is not a nonroad engine if the engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the Act (42 U.S.C. 7411)."

Coeur d'Alene Regional Office also recommended revision of Permit Condition 2.15 to include a mailing address for reporting. This recommendation has been incorporated.

7.2 Facility Review of Draft Permit

A draft permit was submitted to the facility for review on June 25, 2007. ~~Biopol Laboratory~~ALK-Abello requested a change for their individual and aggregate HAP emissions for methanol from the Spanish Mites process. This change contributed to a 0.25 lb/hr 0.32 T/yr increase requiring the individual and aggregate HAP facility wide increase to 0.4 T/yr for individual HAPs and 0.5 T/yr for aggregate HAPs. The methanol emissions from the facility are 0.26 lb/hr and are below the screening emissions level of 17.3 lb/hr, therefore modeling is not required. This comment has been incorporated.

~~Biopol Laboratory~~ALK-Abello requested that "diesel fuel" replace "ASTM Grade 2 Fuel oil" noting that diesel fuel differs from ASTM Grade 2 Fuel Oil because of various additives but in the ASTM Grade most closely resembles Grade 2 fuel oil. For the purposes of this permit, Permit Condition 2.6 will remain as "ASTM Grade 2 Fuel" in order to be consistent with IDAPA 58.01.01.728, however, the Statement of basis will demonstrate that the fuel combusted will be diesel fuel. 40 CFR 60, Subpart IIII regulates the sulfur content more strictly than Idaho rule and shall govern should there be a conflict. This comment has been incorporated in the Statement of Basis only.

~~Biopol Laboratory~~ALK-Abello requested review of General Provision 5. DEQ has developed the General Provision section of the PTC permits to be generally applicable. Provisions (a) and (e) are considered by DEQ to be reasonable under general scenarios for enforceability of Permit Authority and other applicable Permit Conditions. The comment has been considered but has not been incorporated.

~~Biopol Laboratory~~ALK-Abello identified several typographical errors that have been incorporated.

7.3 Public Comment

An opportunity for public comment period on the PTC application was provided from May 23, 2007 to June 6, 2007 in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommens that ~~Biopol Laboratory, Inc.~~ALK-Abello be issued a draft PTC No. 2007.0063 for the initial PTC FEC. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

JP/slm Permit No. P-2007.0063

Appendix A

AIRS Information

P-2007.0063

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: ~~Biopol Laboratory, Inc.~~ALK-Abello Source Materials, Inc.
Facility Location: Kootenai, Idaho
AIRS Number: 055-00072

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B		B					U
CO	B		B					U
PM_{10}	B							U
PT (Particulate)	B							
VOC	B							U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					
			IIII					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.
SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
B = Actual and potential emissions below all applicable major source thresholds.
C = Class is unknown.
ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Emissions Inventory

P-2007.0063

~~ATTACHMENT 4~~
~~FACILITY EMISSION CAP DISCUSSION~~

~~To obtain the maximum degree of operational flexibility, Biopol~~ALK Abello ~~is seeking to establish Facility Emission Caps (FECs) for NO_x, PM_{10} (short term and long term), and perchloroethylene, pursuant to IDAPA 58.01.01.176-181. In accordance with these regulations, the FECs are determined by summing three components:~~

- ~~Baseline Emissions~~
- ~~Operational Variability Component~~
- ~~Growth Component~~

~~In Attachment 2 to this application, the potential emissions from each source were calculated based on the assumption that each source would operate at its rated capacity on a continuous basis. Actual emissions were calculated, based on expected operating levels and schedules. Since the facility is new, the actual emissions represent the baseline component of the FEC. The difference between actual and potential emissions represents the operational variability component. The potential emissions from the equipment that Biopol~~ALK Abello ~~anticipates installing in later phases of the project represents the growth component. Tables 4-1, 4-2, 4-3, and 4-4 summarize these emission rates for NO_x, long term PM_{10}, short term PM_{10}, and perchloroethylene, respectively.~~

~~Table 4-1. FEC FOR NO_x EMISSIONS~~

~~Source ID~~	~~Source~~	~~Baseline Emissions, ton/yr~~	~~Operational Variability, ton/yr~~	~~Growth, ton/yr~~	~~Total Emissions, ton/yr~~
~~HB-1~~	~~125-hp Boiler~~	~~0.30~~	~~1.0~~	~~—~~	~~1.3~~
~~HB-2~~	~~125-hp Boiler~~	~~0.30~~	~~1.0~~	~~—~~	~~1.3~~
~~HB-3~~	~~125-hp Boiler~~	~~—~~	~~—~~	~~1.3~~	~~1.3~~
~~HB-4~~	~~125-hp Boiler~~	~~—~~	~~—~~	~~1.3~~	~~1.3~~
~~SB-2~~	~~50-hp Boiler~~	~~—~~	~~—~~	~~0.5~~	~~0.5~~
~~CU-3~~	~~1,000-kW Electric Generator~~	~~1.24~~	~~1.85~~	~~—~~	~~3.09~~
~~AHU-1~~	~~Air Handling Unit—U.S. Mites Inoculation Area~~	~~0.0032~~	~~0.011~~	~~—~~	~~0.014~~
~~AHU-2~~	~~Air Handling Unit—U.S. Mites Process Support~~	~~0.0026~~	~~0.008~~	~~—~~	~~0.011~~
~~AHU-3~~	~~Air Handling Unit—SSM Pollen Lab~~	~~0.0345~~	~~0.117~~	~~—~~	~~0.151~~
~~AHU-4~~	~~Air Handling Unit—PD/QC Lab~~	~~0.0299~~	~~0.101~~	~~—~~	~~0.131~~
~~AHU-6~~	~~Air Handling Unit—Administration Building~~	~~0.0040~~	~~0.014~~	~~—~~	~~0.018~~
~~AHU-7~~	~~Air Handling Unit—Timothy Pollen Building~~	~~—~~	~~—~~	~~0.129~~	~~0.129~~
~~AHU-8~~	~~Air Handling Unit—Ragweed Pollen Building~~	~~—~~	~~—~~	~~0.129~~	~~0.129~~
~~AHU-9~~	~~Air Handling Unit—Birch Pollen Building~~	~~—~~	~~—~~	~~0.129~~	~~0.129~~
~~AHU-10~~	~~Air Handling Unit—Spanish Mites Building~~	~~—~~	~~—~~	~~0.221~~	~~0.221~~
~~AHU-11~~	~~Air Handling Unit—SSM Expansion~~	~~—~~	~~—~~	~~0.151~~	~~0.151~~
~~TOTAL NO_x FEC~~		~~1.9141.84~~	~~4.1013.85~~	~~3.8593.1~~	~~9.8748.79~~

Table 4-2. FEC FOR PM_{10} EMISSIONS (LONG-TERM)

Source ID	Source	Baseline Emissions, ton/yr	Operational Variability, ton/yr	Growth, ton/yr	Total Emissions, ton/yr
HB-1	125-hp Boiler	0.05	0.15	—	0.20
HB-2	125-hp Boiler	0.05	0.15	—	0.20
HB-3	125-hp Boiler	0.05	0.15	—	0.20
HB-4	125-hp Boiler	—	—	0.20	0.20
SB-2	50-hp Boiler	—	—	0.08	0.08
CU-3	1,000 kW Electric Generator	0.04	0.07	—	0.11
AHU-1	Air Handling Unit – U.S. Mites Inoculation Area	0.0005	0.0015	—	0.002
AHU-2	Air Handling Unit – U.S. Mites Process Support	0.0004	0.0016	—	0.002
AHU-3	Air Handling Unit – SSM Pollen Lab	0.0052	0.0178	—	0.023
AHU-4	Air Handling Unit – PD/QC Lab	0.0045	0.0155	—	0.020
AHU-6	Air Handling Unit – Administration Building	0.0006	0.0024	—	0.003
AHU-7	Air Handling Unit – Timothy Pollen Building	—	—	0.020	0.020
AHU-8	Air Handling Unit – Ragweed Pollen Building	—	—	0.020	0.020
AHU-9	Air Handling Unit – Birch Pollen Building	—	—	0.020	0.020
AHU-10	Air Handling Unit – Spanish Mites Building	—	—	0.034	0.034
AHU-11	Air Handling Unit – SSM Expansion	—	—	0.023	0.023
T-21	Timothy Fluid Bed Dryer	0.004	1.876	—	1.88
T-37	Timothy Pneumatic Conveyor Release	0.03	0.16	—	0.19
B-30	Birch Fluid Bed Dryer	—	—	1.88	1.88
B-36	Birch Pneumatic Conveyor Release	—	—	0.19	0.19
R-27	Ragweed Fluid Bed Dryer	—	—	1.88	1.88
R-39	Ragweed Pneumatic Conveyor Release	—	—	0.19	0.19
SM-40	Spanish Mites Media Prep Room	—	—	0.47	0.47
SM-38	Spanish Mites Pneumatic Conveyor Release	—	—	0.113	0.113
A-5	Administration House Vacuum System	0.03	0.16	—	0.19
Source ID	**Source**	**Baseline Emissions, ton/yr**	**Operational Variability, ton/yr**	**Growth, ton/yr**	**Total Emissions, ton/yr**
B-31	Birch Pollen House Vacuum System	—	—	0.19	0.19
R-28	Ragweed Pollen House Vacuum System	—	—	0.19	0.19
T-22	Timothy Pollen House Vacuum System	0.03	0.16	—	0.19
SM-25	Spanish Mites House Vacuum System	—	—	0.19	0.19
P-1EF2-1, EF3-1, EF3-2	U.S. Mites/SSM Building Exhaust	0.83	4.558	—	5.388
P-2EF4-1	Process Development/Quality Assurance Lab	0.29	1.593	—	1.883
EF-VAC	House Vacuum	0.02	—	—	0.02
EF9-1	Timothy Dust Collector	—	—	2.13	2.13
TOTAL LONG-TERM PM_{10} FEC		1.41521.31	9.06586.671	5.697.133	16.17115.134

Table 4-3. FEC FOR PM_{10} EMISSIONS (SHORT-TERM)

Source ID	Source	Baseline Emissions, lb/hr	Operational Variability, lb/hr	Growth, lb/hr	Total Emissions, lb/hr
HB-1	125-hp Boiler	0.05	—	—	0.05
HB-2	125-hp Boiler	0.05	—	—	0.05
HB-3	125-hp Boiler	—	—	0.05	0.05
HB-4	125-hp Boiler	—	—	0.05	0.05
SB-2	50-hp Boiler	—	—	0.02	0.02
CU-3	1,000-kW Electric Generator	0.22 (50% load)	0.22	—	0.44
AHU-1	Air Handling Unit—U.S. Mites Inoculation Area	0.0005	—	—	0.0005
AHU-2	Air Handling Unit—U.S. Mites Process Support	0.0004	—	—	0.0004
AHU-3	Air Handling Unit—SSM Pollen Lab	0.052	—	—	0.052
AHU-4	Air Handling Unit—PD/QC Lab	0.0045	—	—	0.0045
AHU-6	Air Handling Unit—Administration Building	0.0006	—	—	0.0006
Source ID	**Source**	**Baseline Emissions, lb/hr**	**Operational Variability, lb/hr**	**Growth, lb/hr**	**Total Emissions, lb/hr**
AHU-7	Air Handling Unit—Timothy Pollen Building	—	—	0.0045	0.0045
AHU-8	Air Handling Unit—Ragweed Pollen Building	—	—	0.0045	0.0045
AHU-9	Air Handling Unit—Birch Pollen Building	—	—	0.0045	0.0045
AHU-10	Air Handling Unit—Spanish Mites Building	—	—	0.0077	0.0077
AHU-11	Air Handling Unit—SSM Expansion	—	—	0.0052	0.0052
T-21	Timothy Fluid Bed Dryer	0.43	—	—	0.43
T-37	Timothy Pneumatic Conveyor Release	0.04	—	—	0.04
B-30	Birch Fluid Bed Dryer	—	—	0.43	0.43
B-36	Birch Pneumatic Conveyor Release	—	—	0.04	0.04
R-27	Ragweed Fluid Bed Dryer	—	—	0.43	0.43
R-39	Ragweed Pneumatic Conveyor Release	—	—	0.04	0.04
SM-40	Spanish Mites Media Prep Room	—	—	0.11	0.11
SM-38	Spanish Mites Pneumatic Conveyor Release	—	—	0.26	0.26
A-5	Administration House Vacuum System	0.04	—	—	0.04
B-31	Birch Pollen House Vacuum System	—	—	0.04	0.04
R-28	Ragweed Pollen House Vacuum System	—	—	0.04	0.04
T-22	Timothy Pollen House Vacuum System	0.04	—	—	0.04
SM-25	Spanish Mites House Vacuum System	—	—	0.04	0.04
P-1EF2-1, EF3-1, EF3-2	U.S. Mites/SSM Building Exhaust	1.23	—	—	1.23
P-2EF4-1	Process Development/Quality Assurance Lab	0.43	—	—	0.43
EF-VAC	House Vacuum	0.013	—	—	0.013
EF9-1	Timothy Dust Collector	—	—	0.49	0.49
TOTAL SHORT TERM PM_{10} FEC		**2.5881.993**	**0.22**	**1.57641.92**	**4.38444.133**

Table 4-4. FEC FOR PERCHLOROETHYLENE EMISSIONS

Source ID	Source	Baseline Emissions, ton/yr	Operational Variability, ton/yr	Growth, ton/yr	Total Emissions, ton/yr
P-1EF3-1	U.S. Mites/SSM Building Exhaust	0.08	0.086	—	0.166
TOTAL PERCHLOROETHYLENE FEC		0.08	0.086	—	0.166

NON-FEC EMISSION LIMITS

Since a FEC can be established only though dispersion modeling, and modeling was not required for CO, VOC, and SO_x, this application does not propose FECs for these pollutants. However, it is necessary to establish emission limits for them. Tables 4-5, 4-6, and 4-7 summarize the calculated CO emissions from combustion sources. Tables 4-8a and 4-8b summarize the calculated TAP emissions and proposed TAP emission limits, respectively. To allow for operating variability, we propose that a 20 percent margin be added to the calculated emission values for CO, VOC, SO_x, and TAPs.

Table 4-5. CO EMISSION LIMITS

Source ID	Source	lb/hr	ton/yr
HB-1	125-hp Boiler	0.5	2.2
HB-2	125-hp Boiler	0.5	2.2
HB-3	125-hp Boiler	0.5	2.2
HB-4	125-hp Boiler	0.5	2.2
SB-2	50-hp Boiler	0.2	0.9
CU-3	1,000-kW Electric Generator	7.71	1.93
AHU-1	Air Handling Unit – U.S. Mites Inoculation Area	0.005	0.023
AHU-2	Air Handling Unit – U.S. Mites Process Support	0.004	0.019
AHU-3	Air Handling Unit – SSM Pollen Lab	0.058	0.23
AHU-4	Air Handling Unit – PD/QC Lab	0.050	0.22
AHU-6	Air Handling Unit – Administration Building	0.007	0.029
AHU-7	Air Handling Unit – Timothy Pollen Building	0.050	0.217
AHU-8	Air Handling Unit – Ragweed Pollen Building	0.050	0.217
AHU-9	Air Handling Unit – Birch Pollen Building	0.050	0.217
AHU-10	Air Handling Unit – Spanish Mites Building	0.085	0.372
AHU-11	Air Handling Unit – SSM Expansion	0.058	0.253
TOTAL CO EMISSIONS		10.3279.91	13.42711.63
PROPOSED CO EMISSION LIMITS (120%)		12.3911.89	16.1113.96

Table 4-6. VOC EMISSION LIMITS

Source ID	Source	lb/hr	ton/yr
HB-1	125-hp Boiler	0.03	0.14
HB-2	125-hp Boiler	0.03	0.14
HB-3	125-hp Boiler	0.03	0.14
HB-4	125-hp Boiler	0.03	0.14
SB-2	50-hp Boiler	0.01	0.06
CU-3	1,000-kW Electric Generator	1.74	0.44
AHU-1	Air Handling Unit – U.S. Mites Inoculation Area	<0.001	0.002
AHU-2	Air Handling Unit – U.S. Mites Process Support	<0.001	0.001
AHU-3	Air Handling Unit – SSM Pollen Lab	0.0038	0.017
AHU-4	Air Handling Unit – PD/QC Lab	0.0033	0.014
AHU-6	Air Handling Unit – Administration Building	<0.001	0.002
AHU-7	Air Handling Unit – Timothy Pollen Building	0.0032	0.014
AHU-8	Air Handling Unit – Ragweed Pollen Building	0.0032	0.014
AHU-9	Air Handling Unit – Birch Pollen Building	0.0032	0.014
AHU-10	Air Handling Unit – Spanish Mites Building	0.0056	0.024
AHU-11	Air Handling Unit – SSM Expansion	0.0038	0.017
P-1EF2-1, EF3-1, EF3-2	U.S. Mites/SSM Building Exhaust	1.107	0.40
P-2EF4-1	PD/QC Lab	0.082	0.103
SM-23	Spanish Mites Washing	4.73	6.14
TOTAL VOC EMISSIONS		7.827.79	7.847.70
PROPOSED VOC EMISSION LIMITS (120%)		9.389.35	9.419.24

~~Table 4-7. SO_x EMISSION LIMITS~~

~~Source ID~~	~~Source~~	~~lb/hr~~	~~ton/yr~~
~~HB-1~~	~~125-hp Boiler~~	~~<0.001~~	~~0.02~~
~~HB-2~~	~~125-hp Boiler~~	~~<0.001~~	~~0.02~~
~~HB-3~~	~~125-hp Boiler~~	~~<0.001~~	~~0.02~~
~~HB-4~~	~~125-hp Boiler~~	~~<0.001~~	~~0.02~~
~~SB-2~~	~~50-hp Boiler~~	~~<0.001~~	~~0.01~~
~~CU-3~~	~~1,000-kW Electric Generator~~	~~0.49~~	~~0.12~~
~~AHU-1~~	~~Air Handling Unit—U.S. Mites Inoculation Area~~	~~<0.001~~	~~<0.001~~
~~AHU-2~~	~~Air Handling Unit—U.S. Mites Process Support~~	~~<0.001~~	~~<0.001~~
~~AHU-3~~	~~Air Handling Unit—SSM Pollen Lab~~	~~<0.001~~	~~0.002~~
~~AHU-4~~	~~Air Handling Unit—PD/QC Lab~~	~~<0.001~~	~~0.002~~
~~AHU-6~~	~~Air Handling Unit—Administration Building~~	~~<0.001~~	~~<0.001~~
~~AHU-7~~	~~Air Handling Unit—Timothy Pollen Building~~	~~<0.001~~	~~0.002~~
~~AHU-8~~	~~Air Handling Unit—Ragweed Pollen Building~~	~~<0.001~~	~~0.002~~
~~AHU-9~~	~~Air Handling Unit—Birch Pollen Building~~	~~<0.001~~	~~0.002~~
~~AHU-10~~	~~Air Handling Unit—Spanish Mites Building~~	~~<0.001~~	~~0.003~~
~~AHU-11~~	~~Air Handling Unit—SSM Expansion~~	~~<0.001~~	~~0.002~~
~~**TOTAL SO_x EMISSIONS**~~		~~**0.505**0.495~~	~~**0.228**0.21~~
~~**PROPOSED SO_x EMISSION LIMITS (120%)**~~		~~**0.610.584**~~	~~0.270.252~~

~~Table 4-8a. CALCULATED TAP EMISSIONS~~

~~TAP~~	~~Calculated Emissions~~		~~EL, lb/hr~~
	~~lb/hr~~	~~ton/yr~~	
~~Acetone~~	~~15.2~~	~~19.79~~	~~119~~
~~Isopropyl alcohol~~	~~0.12~~	~~0.16~~	~~65.3~~
~~Ethanol~~	~~4.93~~	~~6.39~~	~~125~~
~~Methanol~~	~~0.259~~	~~0.333~~	~~17.3~~
~~Tetrachloroethylene[a]~~	~~0.86~~	~~0.08~~	~~0.013~~

~~Table 4-8b. PROPOSED TAP EMISSION LIMITS (120%)~~

~~TAP~~	~~Calculated Emissions~~		~~EL, lb/hr~~
	~~lb/hr~~	~~ton/yr~~	
~~Acetone~~	~~18.2~~	~~23.7~~	~~119~~
~~Isopropyl alcohol~~	~~0.14~~	~~0.19~~	~~65.3~~
~~Ethanol~~	~~5.92~~	~~7.67~~	~~125~~
~~Methanol~~	~~0.31~~	~~0.40~~	~~17.3~~
~~Tetrachloroethylene~~	~~1.03~~	~~0.10~~	~~0.013~~

~~COMPLIANCE WITH FEC REQUIREMENTS~~

~~FECs area available only to non major sources. As shown on Form EI CP1 and in Attachment 2 (Emission Calculations), the potential emissions from the facility are less than the major source thresholds.~~

~~IDAPA 58.01.01.176 through 181 require that emission caps be determined through an ambient air quality dispersion modeling analysis. Attachment 3 contains the report on the refined modeling that was performed in support of the FECs and emission limits summarized above. This analysis was performed in accordance with DEQ's modeling guidance and in close consultation with a Mr. Kevin Schilling of DEQ's modeling group. This analysis demonstrates that even under the worst case scenario, the facility will not cause an exceedance of any National Ambient Air Quality Standards, nor will it adversely impact a Class I PSD area.~~

~~The proposed FECs for NO_x, PM_{10}, and tetrachloroethylene are consistent with the averaging periods of the respective ambient air quality standard or Acceptable Ambient Concentration. Where appropriate, both long term and short term FECs are proposed.~~

~~Monitoring for each combustion source (boilers, electric generator, and air handling units) will be performed to satisfy the regulatory requirements. Specifically, the boilers and air handling units will be equipped with fuel usage meters to monitor monthly fuel usage; the electric generator will be equipped with a non resettable hour meter to track the operation schedule. Fuel usage in the electric generator will also be monitored to provide information on the power output of the unit. Monitored parameters will be recorded in a permanent, bound logbook on a monthly basis and will be made available to DEQ upon request.~~

~~The process sources (including fluidized bed dryers, filter dryers, pan dryers, lab hoods, housekeeping vacuum systems, and other sources) will be monitored using material balances on the types and amounts of materials used and recovered. BiopolALK Abello will develop spreadsheets to calculate emissions from the recorded process data..~~

~~Emissions will be calculated on a monthly and 12 month rolling basis using approved emission factors, test data, material balances, or other methods approved by EPA and DEQ. BiopolALK Abello will submit an annual emission report to DEQ on or before the anniversary date of the permit's issuance. Monthly and 12 month rolling emissions from each source will be included in this report to demonstrate that emissions remained below the FECs and other emission limits throughout the reporting period. The report will also include a summary of emission sources added to and removed from the facility during the reporting period, as well as any changes in fuels, raw materials, or processing methods that have an impact on emissions.~~

~~Any material changes at the facility will be evaluated to determine whether the potential exists for an exceedance of the FEC or other emission limit, and whether the potential exists for an increase in ambient air quality concentration of a FEC pollutant. If a positive finding is made concerning either of these tests, BiopolALK Abello will contact DEQ to discuss the appropriate mechanism for permitting the change.~~

ATTACHMENT 5
FACILITY EMISSION CAP DISCUSSION

To obtain the maximum degree of operational flexibility, ALK-Abello is seeking to establish Facility Emission Caps (FECs) for NO_x, PM_{10} (short-term and long-term), and perchloroethylene, pursuant to IDAPA 58.01.01.176-181. In accordance with these regulations, the FECs are determined by summing three components:

- Baseline Emissions
- Operational Variability Component
- Growth Component

In Attachment 4 to this application, the potential emissions from each source were calculated based on the assumption that each source would operate at its rated capacity on a continuous basis. Actual emissions were calculated, based on expected operating levels and schedules. Since the facility is new, the actual emissions represent the baseline component of the FEC. The difference between actual and potential emissions represents the operational variability component. The potential emissions from the equipment that ALK-Abello anticipates installing in later phases of the project represents the growth component. Tables 5-1, 5-2, 5-3, and 5-4 summarize these emission rates for NO_x, long-term PM_{10}, short-term PM_{10}, and perchloroethylene, respectively.

Table 5-1. FEC FOR NO_X EMISSIONS

Source ID	Source	Baseline Emissions, ton/yr	Operational Variability, ton/yr	Growth, ton/yr	Total Emissions, ton/yr
HB-1 (SRC-1)	125-hp Boiler	0.30	1.0	---	1.3
HB-2 (SRC-1)	125-hp Boiler	0.30	1.0	---	1.3
HB-3 (SRC-1)	125-hp Boiler	0.30	1.0	---	1.3
HB-4 (SRC-1)	125-hp Boiler	---	---	1.3	1.3
SRC-5	50-hp Boiler	---	---	0.5	0.5
SRC-6	1,000-kW Electric Generator	1.24	1.85	---	3.09
~~AHU-1~~	~~Air Handling Unit – U.S. Mites Inoculation Area~~	~~0.0032~~	~~0.011~~	—	~~0.014~~
~~AHU-2~~	~~Air Handling Unit – U.S. Mites Process Support~~	~~0.0026~~	~~0.008~~	—	~~0.011~~
~~AHU-3~~	~~Air Handling Unit – SSM Pollen Lab~~	~~0.0345~~	~~0.117~~	—	~~0.151~~
~~AHU-4~~	~~Air Handling Unit – PD/QC Lab~~	~~0.0299~~	~~0.101~~	—	~~0.131~~
~~AHU-6~~	~~Air Handling Unit – Administration Building~~	~~0.0040~~	~~0.014~~	—	~~0.018~~
~~AHU-7~~	~~Air Handling Unit – Timothy Pollen Building~~	—	—	~~0.129~~	~~0.129~~
~~AHU-8~~	~~Air Handling Unit – Ragweed Pollen Building~~	—	—	~~0.129~~	~~0.129~~
~~AHU-9~~	~~Air Handling Unit – Birch Pollen Building~~	—	—	~~0.129~~	~~0.129~~
~~AHU-10~~	~~Air Handling Unit – Spanish Mites Building~~	—	—	~~0.221~~	~~0.221~~
~~AHU-11~~	~~Air Handling Unit – SSM Expansion~~	—	—	~~0.151~~	~~0.151~~
TOTAL NO_x FEC		**2.14**	**4.85**	**1.8**	**8.79**

Table 5-2. FEC FOR PM_{10} EMISSIONS (LONG-TERM)

Source ID	Source	Baseline Emissions, ton/yr	Operational Variability, ton/yr	Growth, ton/yr	Total Emissions, ton/yr
HB-1 (SRC-1)	125-hp Boiler	0.05	0.15	---	0.20
HB-2 (SRC-1)	125-hp Boiler	0.05	0.15	---	0.20
HB-3 (SRC-1)	125-hp Boiler	0.05	0.15	---	0.20
HB-4 (SRC-1)	125-hp Boiler	---	---	0.20	0.20
SRC-5	50-hp Boiler	---	---	0.08	0.08
SRC-6	1,000-kW Electric Generator	0.04	0.07	---	0.11
~~AHU-1~~	~~Air Handling Unit – U.S. Mites Inoculation Area~~	~~0.0005~~	~~0.0015~~	~~---~~	~~0.002~~
~~AHU-2~~	~~Air Handling Unit – U.S. Mites Process Support~~	~~0.0004~~	~~0.0016~~	~~—~~	~~0.002~~
~~AHU-3~~	~~Air Handling Unit – SSM Pollen Lab~~	~~0.0052~~	~~0.0178~~	~~—~~	~~0.023~~
~~AHU-4~~	~~Air Handling Unit – PD/QC Lab~~	~~0.0045~~	~~0.0155~~	~~---~~	~~0.020~~
~~AHU-6~~	~~Air Handling Unit – Administration Building~~	~~0.0006~~	~~0.0024~~	~~—~~	~~0.003~~
~~AHU-7~~	~~Air Handling Unit – Timothy Pollen Building~~	~~—~~	~~—~~	~~0.020~~	~~0.020~~
~~AHU-8~~	~~Air Handling Unit – Ragweed Pollen Building~~	~~—~~	~~—~~	~~0.020~~	~~0.020~~
~~AHU-9~~	~~Air Handling Unit – Birch Pollen Building~~	~~—~~	~~—~~	~~0.020~~	~~0.020~~
~~AHU-10~~	~~Air Handling Unit – Spanish Mites Building~~	~~—~~	~~—~~	~~0.034~~	~~0.034~~
~~AHU-11~~	~~Air Handling Unit – SSM Expansion~~	~~—~~	~~—~~	~~0.023~~	~~0.023~~
~~T-21~~	~~Timothy Fluid Bed Dryer~~	~~0.004~~	~~1.876~~	~~—~~	~~1.88~~
~~T-37~~	~~Timothy Pneumatic Conveyor Release~~	~~0.03~~	~~0.16~~	~~—~~	~~0.19~~
SRC-30	Birch Building Fluid Bed Dryer (future)	---	---	0.942	0.942
SRC-32	Birch Building Pneumatic Vent (future)	---	---	0.175	0.175
SRC-27	Ragweed Building Fluid Bed Dryer (future)	---	---	0.942	0.942
SRC-29	Ragweed Building Pneumatic Vent (future)	---	---	0.175	0.175
SRC-24	Spanish Mite Building Media Prep Vent (future)	---	---	0.482	0.482

Source ID	Source	Baseline Emissions, ton/yr	Operational Variability, ton/yr	Growth, ton/yr	Total Emissions, ton/yr
SRC-26	Spanish Mite Building Pneumatic Vent (future)	---	---	1.139	1.139
~~A-5~~	~~Administration House Vacuum System~~	~~0.03~~	~~0.16~~	~~---~~	~~0.19~~
~~B-31~~	~~Birch Pollen House Vacuum System~~	~~---~~	~~---~~	~~0.19~~	~~0.19~~
~~R-28~~	~~Ragweed Pollen House Vacuum System~~	~~---~~	~~---~~	~~0.19~~	~~0.19~~
~~T-22~~	~~Timothy Pollen House Vacuum System~~	~~0.03~~	~~0.16~~	~~---~~	~~0.19~~
~~SM-25~~	~~Spanish Mites House Vacuum System~~	~~---~~	~~---~~	~~0.19~~	~~0.19~~
~~P-1~~	~~U.S. Mites/SSM Building Exhaust~~	~~0.83~~	~~4.558~~	~~---~~	~~5.388~~
~~P-2~~	~~Process Development/Quality Assurance Lab~~	~~0.29~~	~~1.593~~	~~---~~	~~1.883~~
EF 2-1	USM Purification Lab Hood Exhausts	0.18	0.18	-----	0.36
EF 3-1	Pollen Lab Hood Exhausts	1.28	1.28	----	2.56
EF 4-1	Process Development Lab Hood Exhausts	0.59	0.59	----	1.18
EF 3-4	Class 2 B2 Biological Safety Cabinet	0.10	0.09	----	0.19
EF-VAC	House Vacuum	0.10	0.09	----	0.19
EF 9-1	Timothy Building Dust Collector (future)	0.53	0.53	----	1.06
EF SMDRY	Spanish Mite Fluid Bed Dryer	0.06	0.05	-----	0.11
TOTAL LONG-TERM PM_{10} FEC		**3.03**	**3.33**	**4.135**	**10.50**

Table 5-3. FEC FOR PM_{10} EMISSIONS (SHORT-TERM)

Source ID	Source	Baseline Emissions, lb/hr	Operational Variability, lb/hr	Growth, lb/hr	Total Emissions, lb/hr
HB-1 (SRC-1)	125-hp Boiler	0.05	---	---	0.05
HB-2 (SRC-1)	125-hp Boiler	0.05	---	---	0.05
HB-3 (SRC-1)	125-hp Boiler	0.05	---	---	0.05
HB-4 (SRC-1)	125-hp Boiler	---	---	0.05	0.05
SRC-5	50-hp Boiler	---	---	0.02	0.02
SRC-6	1,000-kW Electric Generator	0.22 (50% load)	0.22	---	0.44
~~AHU-1~~	~~Air Handling Unit – U.S. Mites Inoculation Area~~	~~0.0005~~	—	—	~~0.0005~~
~~AHU-2~~	~~Air Handling Unit – U.S. Mites Process Support~~	~~0.0004~~	—	—	~~0.0004~~
~~AHU-3~~	~~Air Handling Unit – SSM Pollen Lab~~	~~0.052~~	—	—	~~0.052~~
~~AHU-4~~	~~Air Handling Unit – PD/QC Lab~~	~~0.0045~~	—	—	~~0.0045~~
~~AHU-6~~	~~Air Handling Unit – Administration Building~~	~~0.0006~~	—	—	~~0.0006~~
~~AHU-7~~	~~Air Handling Unit – Timothy Pollen Building~~	—	—	~~0.0045~~	~~0.0045~~
~~AHU-8~~	~~Air Handling Unit – Ragweed Pollen Building~~	—	—	~~0.0045~~	~~0.0045~~
~~AHU-9~~	~~Air Handling Unit – Birch Pollen Building~~	—	—	~~0.0045~~	~~0.0045~~
~~AHU-10~~	~~Air Handling Unit – Spanish Mites Building~~	—	—	~~0.0077~~	~~0.0077~~
~~AHU-11~~	~~Air Handling Unit – SSM Expansion~~	—	—	~~0.0052~~	~~0.0052~~
~~T-21~~	~~Timothy Fluid Bed Dryer~~	~~0.43~~	—	—	~~0.43~~
~~T-37~~	~~Timothy Pneumatic Conveyor Release~~	~~0.04~~	—	—	~~0.04~~
SRC-30	Birch Building Fluid Bed Dryer (future)	---	---	0.215	0.215
SRC-32	Birch Building Pneumatic Vent (future)	---	---	0.04	0.04
SRC-27	Ragweed Building Fluid Bed Dryer (future)	---	---	0.215	0.215
SRC-29	Ragweed Building Pneumatic Vent (future)	---	---	0.04	0.04

Source ID	Source	Baseline Emissions, lb/hr	Operational Variability, lb/hr	Growth, lb/hr	Total Emissions, lb/hr
SRC-24	Spanish Mite Building Media Prep Vent (future)	---	---	0.11	0.11
SRC-26	Spanish Mite Building Pneumatic Vent (future)	---	---	0.26	0.26
~~A-5~~	~~Administration House Vacuum System~~	~~0.04~~	~~—~~	~~—~~	~~0.04~~
~~B-31~~	~~Birch Pollen House Vacuum System~~	~~—~~	~~—~~	~~0.04~~	~~0.04~~
~~R-28~~	~~Ragweed Pollen House Vacuum System~~	~~—~~	~~—~~	~~0.04~~	~~0.04~~
~~T-22~~	~~Timothy Pollen House Vacuum System~~	~~0.04~~	~~—~~	~~—~~	~~0.04~~
~~SM-25~~	~~Spanish Mites House Vacuum System~~	~~—~~	~~—~~	~~0.04~~	~~0.04~~
~~P-1~~	~~U.S. Mites/SSM Building Exhaust~~	~~1.23~~	~~—~~	~~—~~	~~1.23~~
~~P-2~~	~~Process Development/Quality Assurance Lab~~	~~0.43~~	~~—~~	~~—~~	~~0.43~~
EF 2-1	USM Purification Lab Hood Exhaust	0.08	—	---	0.08
EF 3-1	Pollen Lab Hood Exhaust	0.58	—	—	0.58
EF 4-1	Process Development Lab Hood Exhaust	0.27	---	---	0.27
EF 3-4	Class 2 B2 Biological Safety Cabinet	0.04	---	---	0.04
EF-VAC	House Vacuum	0.04	---	---	0.04
EF 9-1	Timothy Building Dust Collector	---	---	0.24	0.24
EF SMDRY	Spanish Mite Fluid Bed Dryer	0.03	---	---	0.03
TOTAL SHORT-TERM PM_{10} FEC		**1.41**	**0.22**	**1.19**	**2.82**

Table 5-4. FEC FOR PERCHLOROETHYLENE EMISSIONS

Source ID	Source	Baseline Emissions, ton/yr	Operational Variability, ton/yr	Growth, ton/yr	Total Emissions, ton/yr
~~P-1~~	~~U.S. Mites/SSM Building Exhaust~~	~~0.08~~	~~0.086~~	~~—~~	~~0.166~~
EF 3-1	Pollen Lab Hood Exhausts	0.08	0.086	----	0.166
TOTAL PERCHLOROETHYLENE FEC		**0.08**	**0.086**	**---**	**0.166**

NON-FEC EMISSION LIMITS

Since a FEC can be established only though dispersion modeling, and modeling was not required for CO, VOC, and SO_x, this application does not propose FECs for these pollutants. However, it is necessary to establish emission limits for them. Tables 5-5, 5-6, and 5-7 summarize the calculated CO emissions from combustion sources. Tables 5-8a and 5-8b summarize the calculated TAP emissions and proposed TAP emission limits, respectively. To allow for operating variability, we propose that a 20 percent margin be added to the calculated emission values for CO, VOC, SO_x, and TAPs.

Table 5-5. CO EMISSION LIMITS

Source ID	Source	lb/hr	ton/yr
HB-1 (SRC-1)	125-hp Boiler	0.5	2.2
HB-2 (SRC-1)	125-hp Boiler	0.5	2.2
HB-3 (SRC-1)	125-hp Boiler	0.5	2.2
HB-4 (SRC-1)	125-hp Boiler	0.5	2.2
SRC-5	50-hp Boiler	0.2	0.9
SRC-6	1,000-kW Electric Generator	7.71	1.93
~~AHU-1~~	~~Air Handling Unit - U.S. Mites Inoculation Area~~	~~0.005~~	~~0.023~~
~~AHU-2~~	~~Air Handling Unit - U.S. Mites Process Support~~	~~0.004~~	~~0.019~~
~~AHU-3~~	~~Air Handling Unit - SSM Pollen Lab~~	~~0.058~~	~~0.23~~
~~AHU-4~~	~~Air Handling Unit - PD/QC Lab~~	~~0.050~~	~~0.22~~
~~AHU-6~~	~~Air Handling Unit - Administration Building~~	~~0.007~~	~~0.029~~
~~AHU-7~~	~~Air Handling Unit - Timothy Pollen Building~~	~~0.050~~	~~0.217~~
~~AHU-8~~	~~Air Handling Unit - Ragweed Pollen Building~~	~~0.050~~	~~0.217~~
~~AHU-9~~	~~Air Handling Unit - Birch Pollen Building~~	~~0.050~~	~~0.217~~
~~AHU-10~~	~~Air Handling Unit - Spanish Mites Building~~	~~0.085~~	~~0.372~~
~~AHU-11~~	~~Air Handling Unit - SSM Expansion~~	~~0.058~~	~~0.253~~
TOTAL CO EMISSIONS		**9.91**	**11.63**
PROPOSED CO EMISSION LIMITS (120%)		**11.89**	**14.00**

Table 5-6. VOC EMISSION LIMITS

Source ID	Source	lb/hr	ton/yr
HB-1 (SRC-1)	125-hp Boiler	0.03	0.14
HB-2 (SRC-1)	125-hp Boiler	0.03	0.14
HB-3 (SRC-1)	125-hp Boiler	0.03	0.14
HB-4 (SRC-1)	125-hp Boiler	0.03	0.14
SRC-5	50-hp Boiler	0.01	0.06
SRC-6	1,000-kW Electric Generator	1.74	0.44
~~AHU-1~~	~~Air Handling Unit - U.S. Mites Inoculation Area~~	~~<0.001~~	~~0.002~~
~~AHU-2~~	~~Air Handling Unit - U.S. Mites Process Support~~	~~<0.001~~	~~0.001~~
~~AHU-3~~	~~Air Handling Unit - SSM Pollen Lab~~	~~0.0038~~	~~0.017~~
~~AHU-4~~	~~Air Handling Unit - PD/QC Lab~~	~~0.0033~~	~~0.014~~
~~AHU-6~~	~~Air Handling Unit - Administration Building~~	~~<0.001~~	~~0.002~~
~~AHU-7~~	~~Air Handling Unit - Timothy Pollen Building~~	~~0.0032~~	~~0.014~~
~~AHU-8~~	~~Air Handling Unit - Ragweed Pollen Building~~	~~0.0032~~	~~0.014~~
~~AHU-9~~	~~Air Handling Unit - Birch Pollen Building~~	~~0.0032~~	~~0.014~~
~~AHU-10~~	~~Air Handling Unit - Spanish Mites Building~~	~~0.0056~~	~~0.024~~
~~AHU-11~~	~~Air Handling Unit - SSM Expansion~~	~~0.0038~~	~~0.017~~
~~P-1~~	~~U.S. Mites/SSM Building Exhaust~~	~~1.107~~	~~0.40~~
~~P-2~~	~~PD/QC Lab~~	~~0.082~~	~~0.103~~
SM-23	Spanish Mites Washing	4.97	6.45
EF 2-1,3-1 & 3-4	USM Purification Lab Hood Exhausts, Pollen Lab Hood Exhausts, and Class 2 B2 Biological Safety Cabinet	1.11	0.40
EF 4-1	Process Development Lab Hood Exhausts	0.08	0.10
TOTAL VOC EMISSIONS		**8.03**	**8.01**
PROPOSED VOC EMISSION LIMITS (120%)		**9.64**	**9.61**

Table 5-7. SO_x EMISSION LIMITS

Source ID	Source	lb/hr	ton/yr
HB-1 (SRC-1)	125-hp Boiler	<0.001	0.02
HB-2 (SRC-1)	125-hp Boiler	<0.001	0.02
HB-3 (SRC-1)	125-hp Boiler	<0.001	0.02
HB-4 (SRC-1)	125-hp Boiler	<0.001	0.02
SRC-5	50-hp Boiler	<0.001	0.01
SRC-6	1,000-kW Electric Generator	0.49	0.12
~~AHU-1~~	~~Air Handling Unit - U.S. Mites Inoculation Area~~	~~<0.001~~	~~<0.001~~
~~AHU-2~~	~~Air Handling Unit - U.S. Mites Process Support~~	~~<0.001~~	~~<0.001~~
~~AHU-3~~	~~Air Handling Unit - SSM Pollen Lab~~	~~<0.001~~	~~0.002~~
~~AHU-4~~	~~Air Handling Unit - PD/QC Lab~~	~~<0.001~~	~~0.002~~
~~AHU-6~~	~~Air Handling Unit - Administration Building~~	~~<0.001~~	~~<0.001~~
~~AHU-7~~	~~Air Handling Unit - Timothy Pollen Building~~	~~<0.001~~	~~0.002~~
~~AHU-8~~	~~Air Handling Unit - Ragweed Pollen Building~~	~~<0.001~~	~~0.002~~
~~AHU-9~~	~~Air Handling Unit - Birch Pollen Building~~	~~<0.001~~	~~0.002~~
~~AHU-10~~	~~Air Handling Unit - Spanish Mites Building~~	~~<0.001~~	~~0.003~~
~~AHU-11~~	~~Air Handling Unit - SSM Expansion~~	~~<0.001~~	~~0.002~~
TOTAL SO_x EMISSIONS		**0.495**	**0.21**
PROPOSED SO_x EMISSION LIMITS (120%)		**0.594**	**0.252**

Table 5-8a. CALCULATED TAP EMISSIONS

TAP	Calculated Emissions		EL, lb/hr
	lb/hr	ton/yr	
Acetone	15.2	19.79	119
Isopropyl alcohol	0.12	0.16	65.3
Ethanol	4.93	6.39	125
Methanol	0.25	0.32	17.3
Tetrachloroethylene[a]	0.86	0.08	0.013

Table 5-8b. PROPOSED TAP EMISSION LIMITS (120%)

TAP	Calculated Emissions		EL, lb/hr
	lb/hr	ton/yr	
Acetone	18.2	23.7	119
Isopropyl alcohol	0.14	0.19	65.3
Ethanol	5.92	7.67	125
Methanol	0.30	0.38	17.3
Tetrachloroethylene	1.03	0.10	0.013

COMPLIANCE WITH FEC REQUIREMENTS

FECs area available only to non-major sources. As shown on Form EI-CP1 and in Attachment 4 (Emission Calculations), the potential emissions from the facility are less than the major source thresholds.

IDAPA 58.01.01.176 through 181 require that emission caps be determined through an ambient air quality dispersion modeling analysis. Attachment 3 contains the report on the refined modeling that was performed in support of the FECs and emission limits summarized above. This analysis was performed in accordance with DEQ's modeling guidance and in close consultation with a Mr. Kevin Schilling of DEQ's modeling group. This analysis demonstrates that even under the worst-case scenario, the facility will not cause an exceedance of any National Ambient Air Quality Standards, nor will it adversely impact a Class I PSD area.

The proposed FECs for NO_x, PM_{10}, and tetrachloroethylene are consistent with the averaging periods of the respective ambient air quality standard or Acceptable Ambient Concentration. Where appropriate, both long-term and short-term FECs are proposed.

Monitoring for each combustion source (boilers and electric generator) will be performed to satisfy the regulatory requirements. Specifically, the boilers will be equipped with fuel usage meters to monitor monthly fuel usage; the electric generator will be equipped with a non-resettable hour meter to track the operation schedule. Fuel usage in the electric generator will

also be monitored to provide information on the power output of the unit. Monitored parameters will be recorded in a permanent, bound logbook on a monthly basis and will be made available to DEQ upon request.

The process sources (including fluidized bed dryers, filter dryers, pan dryers, lab hoods, housekeeping vacuum system, and other sources) will be monitored using material balances on the types and amounts of materials used and recovered. ALK-Abello will develop spreadsheets to calculate emissions from the recorded process data..

Emissions will be calculated on a monthly and 12-month rolling basis using approved emission factors, test data, material balances, or other methods approved by EPA and DEQ. ALK-Abello will submit an annual emission report to DEQ on or before the anniversary date of the permit's issuance. Monthly and 12-month rolling emissions from each source will be included in this report to demonstrate that emissions remained below the FECs and other emission limits throughout the reporting period. The report will also include a summary of emission sources added to and removed from the facility during the reporting period, as well as any changes in fuels, raw materials, or processing methods that have an impact on emissions.

Any material changes at the facility will be evaluated to determine whether the potential exists for an exceedance of the FEC or other emission limit, and whether the potential exists for an increase in ambient air quality concentration of a FEC pollutant. If a positive finding is made concerning either of these tests, ALK-Abello will contact DEQ to discuss the appropriate mechanism for permitting the change.

Appendix C

Modeling Review

P-2007.0063

MEMORANDUM

DATE: June 25, 2007

TO: Jonathan Pettit, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P-2007.0063

SUBJECT: Modeling Review for the Biopol Laboratory, Inc. Permit to Construct Application for a allergen purification facility in Post Falls, Idaho

1.0 Summary

Biopol Laboratory, Inc. (Biopol), submitted a Permit to Construct (PTC) application for an allergen purification facility in Post Falls, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated operations of the plant were submitted to demonstrate that the modification would not cause or significantly contribute to a violation of any ambient air quality standard as required by IDAPA 58.01.01.203.02 (Idaho Air Rules Section 203.02). IES Engineers (IES), Biopol's consultant, conducted the ambient air quality analyses. Biopol also proposed to use a Facility Emissions Cap (FEC) to handle anticipated future growth and operational flexibility.

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY RESULTS/CONCLUSIONS FROM THE MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
Results from the modeling analyses easily show compliance with all air quality standards.	No unique monitoring/record keeping requirements are necessary to assure compliance with air quality standards.
Slight changes in emissions or emissions release parameters will not change the compliance status of the modeling analyses.	Since emissions rates of all sources are only slightly above modeling thresholds and since most sources vent at a height of over 10 meters, compliance was easily demonstrated.
Moderate changes in source locations and release parameters for the following sources can occur without the need to revise the modeling analyses: SRC 8, 9, 10, 11, 13, 14, 16, 17, 18, 19.	Emissions rates for these sources are nearly negligible and these sources were modeled both as specific point sources (using best estimates of source locations and parameters) and as volume sources. Modeling these as volume sources tends to substantially over estimate impacts.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 *Area Classification*

The Biopol facility will be located in Post Falls, Idaho. This area is designated as an attainment or unclassifiable area for all criteria pollutants.

2.1.2 *Significant and Full Impact Analyses*

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed facility exceed the significant contribution levels (SCLs) of Idaho Air Rules Section 006.90, then a full National Ambient Air Quality Standard (NAAQS) impact analysis is necessary to demonstrate compliance with Idaho Air Rules Section 203.02. A full NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual	1.0	50[f]	Maximum 1st highest[g]
	24-hour	5.0	150[h]	Maximum 6th highest[i]
Carbon monoxide (CO)	8-hour	500	10,000[j]	Maximum 2nd highest[g]
	1-hour	2,000	40,000[j]	Maximum 2nd highest[g]
Sulfur Dioxide (SO_2)	Annual	1.0	80[f]	Maximum 1st highest[g]
	24-hour	5	365[j]	Maximum 2nd highest[g]
	3-hour	25	1,300[j]	Maximum 2nd highest[g]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[f]	Maximum 1st highest[g]
Lead (Pb)	Quarterly	NA	1.5[h]	Maximum 1st highest[g]

[a]IDAPA 58.01.01.006.90
[b]Micrograms per cubic meter
[c]IDAPA 58.01.01.577 for criteria pollutants
[d]The maximum 1st highest modeled value is always used for significant impact analyses
[e]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f]Never expected to be exceeded for any calendar year
[g]Concentration at any modeled receptor
[h]Never expected to be exceeded more than once in any calendar year
[i]Concentration at any modeled receptor when using five years of meteorological data
[j]Not to be exceeded more than once per year

2.1.3 *Toxic Air Pollutant Analyses*

Toxic Air Pollutant (TAP) requirements for PTCs are specified in Idaho Air Rules Section 210. If the emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Section 586, then compliance with TAP requirements has been demonstrated.

2.2 Background Concentrations

Background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Default small town/suburban background concentrations were used for all criteria pollutants except PM_{10}. PM_{10} background concentrations were based on monitoring data collected from Post Falls. Table 3 lists applicable background concentrations.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
PM_{10}[b]	24-hour	67
	Annual	23.7
Carbon monoxide (CO)	1-hour	10,200
	8-hour	3,400
Sulfur dioxide (SO_2)	3-hour	42
	24-hour	26
	Annual	8
Nitrogen dioxide (NO_2)	Annual	32
Lead (Pb)	Quarterly	0.03

[a] Micrograms per cubic meter
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

Table 4 lists the modeling parameters used in the submitted analyses.

Table 4. REFINED MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 07026
Meteorological data	1987-1991	Spokane, Washington surface and upper air data
Terrain	Considered	Receptor, building, and emissions source elevations were determined using Digital Elevation Model (DEM) files
Building downwash	Considered	The building profile input program (BPIP) was used
Receptor Grid	Grid 1	25-meter spacing along the property boundary out to 200 meters
	Grid 2	100-meter spacing out to 1,500 meters
	Grid 3	500-meter spacing out to 4,000 meters

3.1.1 Modeling protocol and Methodology

The submitted air impact analyses were conducted by IES. A modeling protocol was submitted to DEQ prior to the application. Modeling was generally conducted using methods and data presented in the protocol and the *State of Idaho Air Quality Modeling Guideline*.

Two general air impact scenarios were assessed by the application. The first scenario involved modeling all sources at their anticipated locations and with best estimated release parameters. The second scenario

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

involved modeling a number of low-emitting sources as grouped volume sources. This scenario was used to address situations where the location of emissions sources and the release parameters are uncertain. The submitted application included PM_{10} emissions modeled using scenario 1 and NOx emissions modeled using scenario 2. DEQ assessed PM_{10} impacts for scenario 2 and NOx impacts for scenario 1.

3.1.2 Model Selection

AERMOD was used for the modeling analyses. AERMOD was run using all regulatory default settings.

3.1.3 Meteorological Data

Surface and upper air meteorological data collected from Spokane, Washington, for 1987 through 1991, were used for the modeling analyses. DEQ determined these were the most representative data reasonably available for use in the model; however, DEQ has determined these data are of questionable representativeness for the purpose of air quality dispersion modeling with the AERMOD model. DEQ requested a 20 percent buffer be added to modeled values to account for increased uncertainty resulting from the use of questionably representative meteorological data.

3.1.4 Terrain Effects

Terrain effects on dispersion were considered in the analyses. Receptor elevations were obtained by IES using Digital Elevation Model (DEM) 7.5-minute files for Post Falls, Idaho, and Liberty Lake, Washington-Idaho.

3.1.5 Facility Layout

The facility layout used in the modeling analyses, including the ambient air boundary, buildings, and emissions units, were checked against the proposed layout provided in the application. The layout used in the model was sufficiently representative of the proposed site layout.

3.1.6 Building Downwash

Downwash effects potentially caused by structures at the facility were accounted for in the dispersion modeling analyses. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for AERMOD.

3.1.7 Ambient Air Boundary

IES used the property boundary as the ambient air boundary. Since the facility will be located in an industrial park, DEQ determined use of the property boundary as the ambient air boundary was appropriate.

3.1.8 Receptor Network

The receptor grid met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ determined the receptor grid used was adequate to reasonably resolve maximum modeled concentrations.

3.2 Emission Rates

Emissions rates used in the modeling analyses were equal to or somewhat greater than those presented in other sections of the permit application or the DEQ Statement of Basis.

3.2.1 Criteria Pollutant Emissions Rates

Table 5 provides criteria pollutant emissions rates used in the modeling analyses for both long-term and short-term averaging periods. Total emissions rates for SO_2 and CO were below DEQ modeling thresholds, and DEQ review of emissions levels and the nature of those emissions verified that compliance with applicable standards is easily assured.

The submitted application requested a Facility Emissions Cap (FEC), specifying a baseline emissions rate, operational variability component, and a growth component. The modeling analyses used the sum total of the three emissions components for each emissions point. Results from multiple modeling scenarios were not submitted to justify emissions from any source greater than those specified in Table 5, nor were any modeling results submitted to account for any sources other than those specified in Table 5. Additional modeling analyses would be required if emissions from any source exceed quantities in Table 5 or if emissions sources other than those in Table 5 are constructed and operated. However, emissions from some sources are essentially negligible with regard to ambient impacts. Small changes in maximum emissions from SRC 8, SRC 9, SRC 10, SRC 11, SRC 13, SRC 14, SRC 16, SRC 17, SRC 18, and SRC 19 will not change the compliance status of the analyses.

3.2.2 TAP Emissions Rates

Table 6 lists applicable TAPs emissions associated with the proposed facility that are in excess of the screening emissions level (EL). Emissions of all other TAPs are below applicable ELs and modeling was not required.

3.3 Emission Release Parameters

Table 7 provides emissions release parameters for the analyses, including stack height, stack diameter, exhaust temperature, and exhaust velocity. The submitted application did not involve modeling sources with variable release parameters. Low emitting NOx sources SRC 8, SRC 9, SRC 10, SRC 11, SRC 14, SRC 16, SRC 17, SRC 18, and SRC 19 were grouped into several volume sources to account for uncertainties in location and release parameters. DEQ also ran this scenario for 24-hour PM_{10}. If release heights are not substantially reduced (over 25 percent), other changes in release parameters will be inconsequential to the compliance status.

Table 5. CRITERIA POLLUTANT EMISSIONS RATES USED FOR AIR IMPACT MODELING

Modeled Emissions Point	Description	Emissions Rates (lb/hr)		
		24-Hr PM_{10}[a]	Annual PM_{10}	NOx[b]
SRC1	Natural gas fired boilers (4) each 125 bhp	0.2	0.2	1.2
SRC 5	Natural gas fired boiler 50 bhp	0.02	0.02	0.12
SRC 6	Emergency generator 1100 KW	0.44	0.0251	0.7078
SRC 7	SSM building exhaust	1.06	1.06	
SRC 8	USM inoculation area air handling unit	0.0005	0.0005	0.0032[c]
SRC 9	USM process/support air handling unit	0.0004	0.0004	0.0026[c]
SRC 10	SSM pollen lab air handling unit	0.0052	0.0052	0.0345[c]
SRC 11	Process development/QC labs air handling unit	0.0045	0.0045	0.0299[c]
SRC 12	US mite SSM-2009 (5 exhaust hoods)	0.17	0.17	
SRC 13	Admin air handling unit	0.0006	0.0006	
SRC 14	Timothy pollen building air handling unit (future)	0.0045	0.0045	0.0295[d]
SRC 15	Process development hoods	0.43	0.43	
SRC 16	Ragweed building air handling unit (future)	0.0045	0.0045	0.0295[d]
SRC 17	Birch building air handling unit (future)	0.0045	0.0045	0.0295[d]
SRC 18	Spanish mites air handling unit (future)	0.0077	0.0077	0.0505[e]
SRC 19	SSM expansion air handling unit (future)	0.0052	0.0052	0.0345[e]
SRC 21	Timothy building fluid bed dryer	0.43	0.43	
SRC 22	Timothy building vacuum cleaner	0.04	0.04	
SRC 24	Spanish mite building media prep vent	0.11	0.11	
SRC 25	Spanish mite building vacuum cleaner	0.04	0.04	
SRC 26	Spanish mite building pneumatic vent	0.26	0.26	
SRC 27	Ragweed building fluid bed dryer	0.43	0.43	
SRC 28	Ragweed building vacuum cleaner	0.04	0.04	
SRC 29	Ragweed building pneumatic vent	0.04	0.04	
SRC 30	Birch building fluid bed dryer	0.43	0.43	
SRC 31	Birch building vacuum cleaner	0.04	0.04	
SRC 32	Birch building pneumatic vent	0.04	0.04	
SRC 35	Timothy building pneumatic vent	0.04	0.04	
SRC 37	Combines SRCs 8, 9, 10, 11, 13	0.0112		0.0742
SRC 38	Combines SRCs 14, 16, 17	0.0135		0.0885
SRC 39	Combines SRCs 18, 19	0.0129		0.085

[a] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[b] Oxides of nitrogen
[c] Combined and modeled as SRC 37 as a volume source
[d] Combined and modeled as SRC 38 as a volume source
[e] Combined and modeled as SRC 39 as a volume source

Table 6. TAPS EMISSIONS RATES USED FOR AIR IMPACT MODELING		
Emissions Point	Description	Emissions Rates (lb/hr)[a]
		PERC[b]
SRC 40	SRC 7	0.0379

[a] Pounds per hour
[b] Perchloroethylene or tetrachloroethylene

Table 7. EMISSIONS AND STACK PARAMETERS					
Release Point /Location	**Source Type**	**Stack Height (m)[a]**	**Modeled Diameter (m)**	**Stack Gas Temp. (K)[b]**	**Stack Gas Flow Velocity (m/sec)[c]**
SRC1	point	10.4	0.30	480	11.7
SRC 5	point	10.4	0.30	474	4.8
SRC 6	point	3.7	0.30	797	50.3
SRC 7	point	10.4	0.73	294	15.2
SRC 8	point	10.4	0.24	294	15.2
SRC 9	point	10.4	0.41	294	15.2
SRC 10	point	10.4	0.98	294	15.2
SRC 11	point	10.4	0.89	294	15.2
SRC 12	point	10.4	0.30	294	15.2
SRC 13	point	10.4	0.77	294	15.2
SRC 14	point	13.7	0.91	294	15.2
SRC 15	point	10.4	0.61	294	15.2
SRC 16	point	13.7	0.91	294	15.2
SRC 17	point	13.7	0.91	294	15.2
SRC 18	point	7.3	0.98	294	15.2
SRC 19	point	14.3	0.98	294	15.2
SRC 21	point	13.7	0.46	294	15.2
SRC 22	point	13.7	0.15	294	15.2
SRC 24	point	7.3	0.22	294	15.2
SRC 25	point	7.3	0.15	294	15.2
SRC 26	point	7.3	0.34	294	15.2
SRC 27	point	13.7	0.46	294	15.2
SRC 28	point	13.7	0.15	294	15.2
SRC 29	point	13.7	0.15	294	15.2
SRC 30	point	13.7	0.46	294	15.2
SRC 31	point	13.7	0.15	294	15.2
SRC 32	point	13.7	0.15	294	15.2
SRC 35	point	13.7	0.15	294	15.2
Volume Sources					
Release Point /Location	**Source Type**	**Release Height (m)**	**Initial Horizontal Dispersion Coefficient σ_{y0} (m)**	**Initial Vertical Dispersion Coefficient σ_{z0} (m)**	
SRC 37	Volume	8.8	17.7	4.1	
SRC 38	Volume	12.2	6.7	5.7	
SRC 39	Volume	5.7	10.7	2.7	
SRC 40	Volume	6.1	8.1	2.8	

a. Meters
b. Kelvin
c. Meters per second

3.4 *Results for Significant and Full Impact Analyses*

Results from significant impact analyses are shown in Table 8. Concentration values include a 20 percent contingency applied to modeled values to account for increased uncertainties resulting from the use of questionably representative meteorological data. Full NAAQS impact analyses were required for PM_{10} and NO_2.

Table 8. SIGNIFICANT IMPACT ANALYSES

Pollutant	Averaging Period	Maximum Modeled Concentration[a] ($\mu g/m^3$)[b]	Significant Impact Level ($\mu g/m^3$)	Full Impact Analysis Required
PM_{10}[c]	24-hour	60.7 (75.8[d])	5.0	Yes
	Annual	12.8	1.0	Yes
Nitrogen Dioxide (NO_2)	Annual	10.64 (6.5[e])	1.0	Yes

[a] Maximum modeled concentration plus a 20% contingency to account for increased uncertainty resulting from the use of questionably representative meteorological data
[b] Micrograms per cubic meter
[c] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[d] DEQ modeling of low emitting sources grouped and modeled as volume sources (SRC 37, SRC 38, SRC 39)
[e] DEQ modeling, using on 1987 meteorological data, of all NOx sources as point sources rather than volume sources (includes 20% contingency)

Table 9 provides a summary of the full NAAQS impact analyses. All impacts are well below applicable standards. DEQ NOx modeling analyses simulated all NOx sources as point sources, rather than using volume sources for those groups of point sources where stack locations and release parameters may be uncertain. Results indicated the volume source method used by IES was conservative, and both results were less than half of the applicable standard after applying a 20 percent contingency to modeled results and adding in background concentrations that are likely conservative. DEQ PM_{10} modeling simulated low-emitting PM_{10} sources as volume sources, as was performed for NOx modeling in the submitted analyses. Results for 24-hour PM_{10} concentrations using the volume source method were higher than those obtained for best-estimated stack locations and release parameters, but results were still below the applicable NAAQS.

Table 9. FULL IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Design Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	NAAQS[b] ($\mu g/m^3$)	Percent of NAAQS
PM_{10}[c]	24-hour	60.7 (75.8[d])	67	127.7 (142.8[d])	150	85 (95[d])
	Annual	12.8	23.7	36.5	50	73
Nitrogen Dioxide (NO_2)	Annual	10.64 (6.5[e])	32	42.64 (38.5[e])	100	43 (39[e])

[a] Micrograms per cubic meter
[b] National Ambient Air Quality Standards
[c] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[d] Modeling selected sources as volume sources, as indicated in Table 5
[e] Maximum annual impact from modeling five separate years
[f] DEQ modeling of all NOx sources as point sources rather than volume sources (includes 20% contingency)

3.5 *Results for TAPs Analyses*

Compliance with TAP increments were demonstrated by modeling TAP emissions increases (those TAPs with emissions exceeding the ELs) resulting from operation of the facility. Table 10 summarizes the ambient TAP analyses.

Table 10. RESULTS OF TAP ANALYSES

TAP	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)[a]	AAC or AACC[b] ($\mu g/m^3$)	Percent of AAC or AACC
PERC	Annual	0.97	2.1	46

[a] Micrograms per cubic meter
[b] Acceptable Ambient Concentration or Acceptable Ambient Concentration for a Carcinogen

4.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard. Any changes made to the facility under the provisions of the FEC must be supported by the existing modeling analyses. Revised dispersion modeling analyses must be performed, as required by Idaho Air Rules Section 181, for any changes affecting pollutant dispersion that are not addressed by the analyses submitted with the application or conducted by DEQ in support of the application.

ENGINEERS

ATTACHMENT 3

MODELING REPORT

ATTACHMENT 3.0
AIR QUALITY ANALYSIS

TABLES

APPENDICES

3.0 AIR QUALITY ANALYSIS

3.1 PURPOSE

ALK-Abelló Source Material, Inc. (ALK-Abelló), formerly Biopol Laboratory, Inc., is constructing a new allergen purification facility in an industrial park on Lochsa Street in Post Falls, Idaho. The facility will purify harvested pollen from timothy hay and other allergens for further processing elsewhere to produce vaccines for individuals with allergies. Modeling the sources at this facility serves two purposes: (i) to determine the potential impacts of the proposed project on the ambient air quality; and (ii) to establish emission limits to be incorporated in a Facility Emission Cap (FEC) permit.

A modeling analysis was completed and submitted to Idaho Department of Environmental Quality (Department) in 2007. Since that submission, some changes have been made to the configuration of the buildings and the emission sources. In general, the changes include:

- Change in the building height and configuration
- Elimination of the fuel-fired rooftop air handing units
- Reconfiguration of the emission sources

This report and analysis incorporates the changes at the facility since the original modeling effort.

Since the facility is being constructed in phases, the modeling analysis provides for the equipment that will be included in all phases anticipated over the next five years.

At buildout, emission sources at the facility will include boilers, an electric generator, water heaters, a house vacuum system, laboratory hood exhaust vents, and process operations including a fluidized bed dryer and a filter/dryer. These operations will emit criteria pollutants: oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), volatile organic compounds (VOCs), particulate matter (PM); and the following toxic air pollutants (TAPs): acetone, ethanol, isopropyl alcohol, methanol, and tetrachloroethylene (perchloroethylene).

Based on emission calculations, the facility will be a minor source for all pollutants. In order to obtain the maximum operating flexibility, ALK-Abelló applied for and received a FEC permit, which establishes caps for each regulated pollutant and allows for the installation of currently unspecified equipment without having to re-open the permit.

As part of the FEC requirements, air dispersion modeling is being performed for all pollutants greater than the modeling thresholds established by the Department. The Department uses two levels of modeling thresholds. The first level is an emissions level below which modeling is rarely needed. If facility-wide emissions will remain below these levels, modeling is not necessary, even for a FEC permit. These thresholds are as follows: